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PART I.

ORIGINAL COMMUNICATIONS.

ART. X.—*Observations on the Symptoms resulting from an Undescended Testicle, which were of so painful a Nature as to necessitate its Removal.* By JOHN HAMILTON, Surgeon to the Richmond Hospital, Examiner in Surgery to the Queen's University in Ireland, &c.

THE descent of the testicle during fœtal life is sometimes, though rarely, arrested,—a fact familiar to the profession,—and instead of being by the eighth or ninth month in the scrotum, it is stopped either in the abdomen, in the inguinal canal, or partly within and partly without that canal,—more or less of its lower part protruding from the external abdominal ring;—or, lastly, in some part of the space between that ring and the scrotum.

If entirely within the abdomen, it causes no uneasiness, ex-

cept, perhaps, mental; and Mr. Curling[a] (contrary to the opinion of Hunter) believes that its structure is generally normal, —sufficiently so to discharge the natural functions of the gland. Should the testicle, however, be situated near to the internal abdominal ring, and during efforts get engaged in the commencement of the inguinal canal, much suffering is caused by the compression to which it is thereby subjected.

"I remember," says Richter, "a young man, twenty years of age, who had a small hernia, and no testicle on the left side of the scrotum. The testicle was contained in the abdomen, and sometimes presented at the ring, causing violent pain and symptoms of strangulation, which rendered it necessary to push the gland back again. This object, however, could seldom be accomplished until more than twenty-four hours had elapsed and emollient cataplasms had been employed. The symptoms immediately ceased when the return of the testis was effected"[b].

When the testicle is situated in the inguinal canal, or partly within and partly without the inguinal canal, its growth and further development are materially interfered with; and, being to a certain extent fixed in an exposed situation, it is unable to elude, as it does in the pendulous scrotum, various direct injuries, or the effects of violent corporeal exertions. Mr. Curling gives the case of a boy, ten years of age, in whom a kick on a testicle that had descended no lower than the groin caused death,—the inflammation that followed the violence extending into the peritoneal cavity, the serous sac in which the testicle lay communicating with it.

Occasionally it happens, that during a violent effort the testicle is suddenly forced into a new situation, where the compression to which it is subjected soon induces such pain and inflammation as to call for the most active antiphlogistic remedies. The case I am about to relate, and on which these observations are founded, affords a remarkable instance of these

[a] Diseases of the Testicle, p. 72. [b] Lawrence on Hernia, p. 571, Fifth Ed.

injurious consequences from the malposition of the testicle. The symptoms, also, are at times so violent that (the tumour in the groin occupying the usual seat of inguinal hernia) they have been taken for those of strangulated intestine,—a mistake one would hardly imagine possible except by the most careless observer,—the absence of the testicle from the scrotum being sufficient evidence of the nature of the disease.

Mr. Pott's case, showing how such a mistake might happen, is sufficiently well known; but there is an example related in the Revue Médicale, by M. Delasiauve, where the operation for strangulated hernia was actually performed under the false impression that an inflamed undescended testicle was that affection. Of this I shall give a brief abstract:—

A boy, fifteen years and a half old, of delicate constitution, having long had a right inguinal hernia, perceived a swelling in the left groin. It was of moderate size, went up of itself, or was returned with the slightest pressure. When apparent, it was extremely sensitive, and when reduced, the place was constantly painful. In the course of many months it appeared and disappeared in this way several times. It was looked on as hernia, and supposed to be hereditary, his father having a rupture on both sides. But one day, without any effort having been made, the tumour appeared afresh, larger, harder, and more painful than usual. It was returned with great difficulty. Two days afterwards it came down again, with severe pain, colic, nausea, and sleeplessness. No effort succeeded in reducing it; and, in the belief that it was a strangulated hernia, the surgeons decided, on the fourth day, to operate.

M. Delasiauve, who was called in to assist, doubted the correctness of the diagnosis and of the intended treatment; he made a hasty examination and observed as follows: The tumour was in the direction of the inguinal canal, and extended below the external ring for six lines; it was hard, hot, and large. The pain was very great, and shot up into the abdo-

men. There was no fever, the countenance not altered, the belly soft and lax: no vomiting, and in the night he even had a natural motion. In spite of his remonstrances, however, the operation was proceeded with. The canal having been divided, a tumour appeared, larger than an egg, oval, elongated, terminating inferiorly in a *cul de sac*, moveable, without adhesion, and easily raised. The lowest part passed beyond the external ring more than half-an-inch. A cord, covered by a smooth membrane, went from it up into the abdomen. This cord at its junction made several torsions on itself. Behind, the tumour lay on the muscular wall of the abdomen, and on the superior part of the pubis. It was hard, shining, and of a deep white, meandered over by small vessels, so that from all these circumstances it looked unlike a coil of intestine. While it was being handled, with a view to its reduction, some part of it gave way, a quantity of serous fluid flowed out, and it became rather flaccid, and in feeling it the external tunic could be perceived to move over a body freely moveable in its cavity. The membrane being slit up, the testicle was discovered, redder, harder, and more uneven than natural, the sac in which it lay being the tunica vaginalis. It was only at this period that the scrotum was felt, and found empty on this side. The testicle was removed, and the inflammation which had attacked it had nearly passed on to gangrene; the epididymis was very hard and irregular. The patient made a good recovery.

In this case, inattention and ignorance led to the removal of the testicle: in that which I am about to relate it will be seen that the malposition of the gland in the groin gave rise to such distressing symptoms that its ablation was rendered absolutely necessary.

Mr. W., aged 45, always had a swelling in the right groin, which he and others fancied was a rupture. At one time he got a truss, but the pressure caused such pain that he could not bear it.

About seven weeks since, while lifting a heavy weight on board ship, he felt something in the situation of the swelling crack "like an egg-shell," attended with great pain, shooting up the back and round the hip. The pain was so severe that he could not stand. Leeches were applied; he was cupped on the loins and he was purged, with relief; but the pain again returned, with such general illness, that his brother-in-law sent for me, fearing that it was strangulated hernia.

I found a tumour, resembling in appearance and situation an inguinal hernia of the right side. It was situated in the inguinal canal, and a little below the external abdominal ring, about the size of a hen's egg. The integuments were natural, but so exquisitely sensitive, that examination could scarcely be borne. I ascertained, however, that it had much the feel of a rather firm hernia, that it was smooth and elastic, and *not moved by coughing*. That part of it which protruded below the ring was very hard, and somewhat irregular, and seemed even more tender than the rest. He suffered great pain, not only in the swelling, but up the abdomen to the right loin. He was sick in the stomach, *but the bowels were open.* Skin hot; tongue whitish. As no testicle could be felt in the scrotum of the same side, I had no hesitation in attributing the symptoms to inflammation of an undescended testicle. The inflammation was probably caused by the testicle having been violently dislodged from its usual position in the inguinal canal, and forced into a narrower one, where it became subjected to severe compression by the unyielding tendinous expansion of the external oblique muscle. The violence of the attack speedily yielded to leeches, tartar-emetic, and mercury, but the tumour still remained very sensitive, and that portion which projected external to the ring was hard and very tender: it was the inferior globus of the epididymis, as may be seen in the accompanying lithograph, and was unusually elongated. When he got up and attempted to walk, he suffered pain, shooting from the testicle

up the back, and was forced to go about with the body bent forwards, the erect position causing pain in the testicle. A fortnight had scarcely elapsed when, without apparent cause, the testicle became again inflamed, and in the short interval of seven weeks he had altogether four attacks of orchitis. The manner in which it took place was this: He would get apparently quite well, except some soreness of the lower end of the epididymis and pain shooting up to the back, and round the crest of the ilium, evidently in the track of the circumflex iliac nerve; but the swelling would have subsided, the firm, oval tumour have become a soft pulpy one, and tolerant of moderate pressure. After going about, however, for a few days, uneasy in the erect position and from the motion of walking, he would suddenly suffer such severe pain in the undescended testicle, that he had instantly to take to his bed, and undergo treatment. His own idea was, that the testicle had become displaced, for he was conscious of its moving, and then being "gripped." In one of these attacks the sudden increase in the size of the inflamed testicle was most remarkable, and the lower globules of the epididymis became distinct, very hard, and very tender; the tenderness over the testicle itself was intense, he could not even bear the weight of a piece of lint wet with lotion; from the same cause the first application of leeches gave such pain that I thought it counterbalanced any benefit derivable from them. At one time, about the hard lower globus of the epididymis there was a softer fluctuating swelling, and the pain and tenderness being then at their height, I almost looked to the formation of matter; but in proportion as the inflammation subsided, this soft fluctuating tumour receded. I know now that it was caused by effusion of serum into the tunica vaginalis of the undescended testicle.

As I have mentioned, I treated the first attack with leeches, cold lotions, antimonials, and mercury; but the subsequent attacks differently. In the second, I tried the anodyne plan re-

commended by Mr. Gray, of the Free Hospital, London, which I have found useful in several cases of the ordinary gonorrhœal orchitis: a pill composed of two grains of extract of hyoscyamus, with three of Dover's powder every fourth hour, warm poppy-head stupes, and finally a blister. The last certainly had a most surprising effect; directly it rose the pain and swelling subsided. In the last attack I removed the inflammation and its effects by a purge and blister alone.

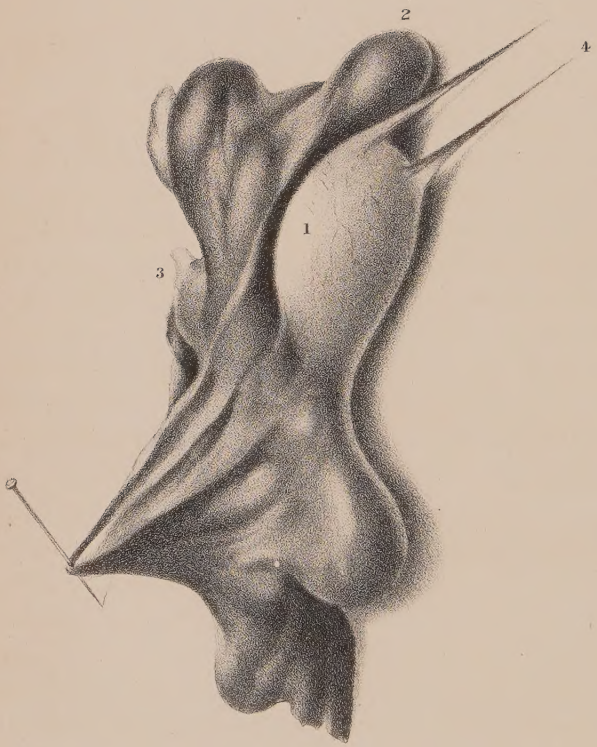
This attack came on in a most unexpected manner: he had recovered from a former one more completely than usual, and, not to risk a relapse, he remained in bed for a few days after being to all appearance quite well; when turning in bed he felt the testicle suddenly slip and go wrong, and inflammation commenced in it immediately. It now became clear, therefore, that though these attacks yielded to treatment, no safeguard existed against their repeated return. In consequence of the effects of the first effort, the position of the undescended testicle had been so changed that it was not only uneasy during any moderate exertion, but liable in a moment to become further displaced, and to be injuriously compressed by the neighbouring parts. So circumstanced, he could not follow any calling which demanded the slightest effort; his future prospects were, therefore, as gloomy as his present state of suffering was distressing. Something more effectual must be attempted. Two plans presented themselves: first, to cut down to the external abdominal ring, slit it up, and that portion of the tendinous expansion of the external oblique muscle which forms the anterior wall of the inguinal canal, and which covered the testicle. This operation was suggested by Sir Philip Crampton in consultation. It appeared to me, however, that after all it might only prove palliative, for when the wound had healed, and cicatrization taken place, the hard cicatrix might be as bad as before. It would be little more severe to remove the

testicle altogether[a]. To the removal of the testicle the patient most readily consented, though it was explained to him that the operation was not quite free from danger, the risk depending in a great measure on whether the serous sac or tunica vaginalis in which the testicle lay communicated with the cavity of the abdomen or not.

December 22nd, 1851. Assisted by Sir Philip Crampton, Dr. Frazer, and my pupil, Mr. Mulock, I removed the testicle, the patient being under the influence of chloroform.

An incision, between three and four inches long, was made over the tumour, and the layers of fascia rapidly divided down to the sac in which the testicle lay,—the tendinous fascia of the external oblique was much thinner than usual. The walls of the sac felt thick, and it evidently contained fluid. I made a small, cautious opening, when a quantity of transparent, yellow serum flowed out, the same in appearance as that of ordinary hydrocele. The sac was slit up, and the testicle could be seen lying in the tunica vaginalis; the membrane smooth and serous, but much more vascular and red than natural, and many bright red bands of adhesion existed between it and the surface of the testicle. There was no communication with the peritoneal cavity. The testicle was smaller than ordinary, its surface smooth and serous, but red; it was dissected out, along with its enveloping sac, from the subjacent parts, and the cord was also carefully separated. This was less easy and required more caution than in ordinary castration, as there was little space between the upper part of the testicle and the internal

[a] Mr. Curling mentions, that in Germany, to relieve the pain of an undescended testicle, the testicle was exposed, separated from the parts in which it lay, drawn down and fixed in a place made for it by incision in the scrotum. I rejected this plan because the final result of the case is not stated, and it appeared to me very doubtful whether a cord so stretched, and so fastened down by adhesions as this must be, would not be more painfully affected by the ordinary motions of the body than even before such an operation.



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abdominal ring. A ligature was put round the cord, which was then divided, and the testicle taken away. There was very little bleeding. The case went on with scarcely a troublesome symptom, and in a little more than three weeks after, he walked into my study with the wound just healed, and with perfect freedom from any of his former morbid sensations.

After removal, examination showed the testicle to be smaller in the body than natural, but having the usual pulpy feel. The tunica albuginea was unusually thin, and when a portion of it was dissected off, the tubuli seminiferi appeared natural, but the division into lobes was much more distinct. When a piece of a seminal tube was placed in the field of a microscope, the structure was quite normal, but the fluid in it contained no spermatozoa, only seminal granules. Some of the fluids expressed from the vas deferens exhibited the same character,—no spermatozoa. The attempt was made by Mr. Carte to inject quicksilver down the vas deferens, but it stopped at little more than an inch from the orifice, in consequence, as we found, of its being blocked up by a yellow substance of firm consistence. The epididymis presented characters quite peculiar: it was unusually long and large; the inferior globus that was felt external to the abdominal ring was much elongated and very hard; there was an appendix from the upper part of the epididymis, and a single hydatid was discovered in it. The vas deferens, of the ordinary size, but very hard, had not the usual zigzag convolutions on itself, but was very straight. The same firm, yellow substance which blocked it up was also found to fill the vasa efferentia. These appearances are well exhibited in the accompanying lithograph, from a drawing by Mr. Connolly.

As far, therefore, as the condition of the testicle went, there can be no doubt that its functions were irretrievably gone, and no regret can be felt at its removal. The deposits were, no

doubt, the result of frequent attacks of inflammation: the intense redness of the tunica vaginalis, and the vascularity of the surface of the testicle, along with the adhesion, show this inflammation to have been of an unusually severe character.

Art. XI.—*Aneurisms of the Arteria Innominata; their History and Differential Diagnosis from Aneurisms of the Arch of the Aorta.* By T. S. Holland, M. D., M. R. C. S. L., Corresponding Member of the Société Anatomique, and of the Parisian Medical Society, Lecturer on Pathological Anatomy and Histology, Cork[a].

(*Continued from p.* 96.)

With what disease is aneurism of the innominata most liable to be confounded? Doubtless, with aneurism of the transverse portion of the arch of the aorta; and it is by contrasting the symptoms and signs of the two affections that I shall endeavour to arrive at their differential diagnosis.

In order to make this comparison, the twenty-four most accurately reported cases (in which *post mortem* examinations were made) have been placed in a tabular form, drawn up in a

[a] The following case was omitted in the first part of this paper:—

Wardrop on Aneurism, page 104.—A man, aged 30, was seized with violent vomiting, during which a swelling suddenly started up in the hollow of his neck; a fortnight after he complained of pain in the right arm and side of the head. An aneurismal tumour occupied the space between the clavicular portion of the sterno-mastoid muscle and the edge of the trapezius, extending downwards and inwards behind the right clavicle; the sac increased rapidly, and respiration became impeded. *Post Mortem.*—The tumour had diminished in size, and arose from the innominata; one of its divisions extended upwards by the side of the trachea, as high as the cricoid cartilage; a second lobe stretched along the clavicle to one-third of the length of that bone; and a third passed upwards and outwards, between these two, to the anterior edge of the trapezius, while the entire sac rested on the arch. The carotid was obstructed to the extent of half-an-inch, and a membrane stretched across the opening of this vessel into the innominata.

manner nearly similar to that in which have been recorded Dr. Greene's[a] twelve cases of aneurism of the transverse portion of the arch, as his essay contains the most complete collection of aneurisms of that part of the vessel with which I am acquainted; and their having been recorded by so accurate an observer, with the intent of arriving at a knowledge of the symptoms and signs proper thereto, leaves nought to be desired save that he had lived to continue his researches. Unfortunately, the same reliance cannot be placed on the record of cases of innominatal aneurism, as some of them were complicated with disease of the adjacent vessels, and the phenomena they presented were not noted with the accuracy that is necessary for affording materials for statistical induction, nor, moreover, is their number sufficient to stamp certainty on conclusions arrived at by their numerical comparison; I hope, nevertheless, to be thereby enabled to develop some of the elements of a diagnosis which clinical observation will, I trust, bring to perfection.

[a] Dublin Quarterly Journal of Medical Science, New Series, vol. ii. p. 1.

No	By whom Reported.	Sex.	Age.	Tumour and Impulse.	Dyspnœa.	Cough and Voice.	Dysphagia.	
1	Mr. Wardrop,	F.	45	A pulsating tumour at the inner side of the sterno-mastoid, its base being the upper part of the sternum.	Great difficulty of respiration at times.	. . . . .	. . . .	Sev thr left hea
6	Dr. Whiting,	M.	40	. . . . .	Constant dyspnœa, increased by exercise.	Harsh, crowing cough; mucous expectoration, streaked with blood.	Difficulty in swallowing solid food.	Int fro alo of f
7	Dr. Auchincloss,	M.	64	A pulsating tumour behind the right sterno-clavicular articulation, extending in the course of carotid and subclavian; finally it occupied the entire right side of neck, pushing larynx and trachea two inches to left.	Dyspnœa prevented sound sleep.	Frequent, dry, tickling cough, and hoarseness of voice	. . . .	Nu sho in r and sho
8	Dr. Henderson,	F.	59	A pulsating tumour extended from the third right rib to two inches above sternal end of right clavicle, and outwards to an inch and quarter from the sterno-clavicular articulation.	Great difficulty of breathing.	Paroxysmal cough.	. . . .	.
9	Dr. Campbell,	M.	48	A pulsating tumour appeared at both the tracheal and external side of the right sterno-mastoid, and within the chest, as low as cartilage of second rib.	. . . .	. . . . .	. . . .	Pai sho side and
10	Mr. Lyon,	M.	43	A pulsating tumour extended from the right side of thyroid gland to the sternum, and under the inferior portion of the sterno-mastoid muscles.	. . . .	. . . . .	. . . .	Pai nec sho
11	Dr. Wishart,	M.	40	Over the upper part of the sternum a strong impulse can be felt, and a murmur is heard extending to the neck.	Great dyspnœa.	Suffocative cough; voice a whisper; hemoptysis.	. . . .	.
14	Mr. Shaw,	M.	50	The hollow below the right clavicle was filled up, and pulsated. Seven months after, a tumour rose above that bone. Sternal end of clavicle pushed forward.	Orthopnœa.	Dry cough; voice at first hoarse, afterwards a whisper.	Slight difficulty in swallowing.	In rig an wh nu ma bo
15	Mr. Shaw,	M.	33	No aneurismal tumour externally.	. . . .	. . . . .	. . . .	.
19	Dr. Stokes,	M.	34	At first a tumour could be felt deep behind the right clavicle, and finally rose above it. Trachea displaced so as to correspond to a line drawn from the middle third of the clavicle. Paraplegia of left side.	Dyspnœa.	Cough of a laryngeal character.	Difficulty in swallowing, diminishing as the external tumour increased.	Pa he nu rig sid lef to
21	Dr. Hutton,	M.	47	Pulsating tumour to the outside of sternal attachment of right sterno-mastoid, afterwards it passed towards the middle of the neck.	Dyspnœa.	Dry cough.	Dysphagia less as the tumour rose above the sternum.	Pa sho vi up ne
24	Burns,	M.	. .	A pulsating tumour beneath the clavicular portion of right sterno-mastoid; it suddenly increased in size, and dislocated the clavicle.	Difficulty of breathing.	Voice gradually became weaker; cough towards the end.	Dysphagia towards the close of life.	Pa si pa ne rig ar

rteries, and Veins.	Respiration.	Percussion.	Auscultation.	Post Mortem Appearances.
sation in right ca- its branches; vi- the left.	Respiratory sounds normal.	. . . .	*Bruit de soufflet* under the clavicular edge of the sterno-mastoid.	Aneurism from the origin of the innominata to its bifurcation; aorta of natural size, calcareous deposit on it; right carotid healthy.
if he sits up for n fifteen minutes.	Frequent attacks of catarrh.	. . . .	. . . . .	Aneurism of innominata lying behind and a little to right of the upper extremity of sternum; cartilages of trachea absorbed, its caliber diminished more than half.
sation in the right an, brachial, or teries.	. . . .	. . . .	. . . . .	An hour after death the tumour had disappeared, leaving a depression in its place. The aneurism engaged two-thirds of the innominata, the carotid to its bifurcation, and the subclavian; the latter being obliterated; sac had not burst; aorta greatly enlarged.
adial pulse strong- left; lengthened between stroke of id radial pulses; on of heart and ardiac region.	. . . .	Dulness on percussion over region occupied by tumour.	Above the clavicle an obscure murmur with sac's diastole, a feeble cooing sound with systole; both feebler the more the heart is approached.	Innominata transformed into an elongated sac; heart dilated; one of the aortic valves folded back, thus allowing regurgitation.
s, subclavians, and equally strong on es; pressure on rotid stopped the is in the tumour npletely than com- the subclavian.	. . . .	Right subclavian space sounded dull.	Double pulsation over the dull space, becoming weaker towards heart, with feeble *bruit de soufflet*; neither thrill nor *bruit* in tumour above the clavicle.	Aneurism of the innominata engaging the transverse arch to origin of carotid, which is slightly dilated; the descending aorta, as low as the diaphragm, dilated, and calcareous deposits upon it; right lung condensed at its superior part from pressure of the sac.
ds pulsated nor- right subclavian ial scarcely to be	. . . .	No dulness on percussion.	No *bruit* over any part of tumour; action of heart healthy; no absence of respiration in any part of the chest.	Aneurism of the innominata, extending from the cricoid cartilage to the arch of the aorta, the latter being slightly involved; rupture into the right pleura.
in right wrist im- ble; for a month eath no pulsation felt in the carotids.	. . . .	. . . .	*Bruit de soufflet* over the tumour; moist rales over both sides of the chest.	Aneurism of the entire anterior wall of the innominata spontaneously cured, the vessel being obliterated; extensive atheromatous deposit in aorta; left carotid, right carotid, and subclavian blocked up with fibrine; left vertebral and subclavian enlarged; tubercular cavities in lungs.
ulsation in right or radial; 76 in carotids equally veins in front of n the right side ated.	. . . .	. . . .	. . . . .	Enormous lobulated aneurism of innominata pressing on the trachea; dislocation of sternal end of clavicle; aneurism of the arch the size of a nutmeg; right subclavian obliterated at its orifice; right vertebral, thyroid, and internal mammary obliterated at their origin; right subclavian vein lost in the walls of the sac.
pulse smaller and han left; veins on ck, chest, and ab- nlarged.	. . . .	. . . .	At the middle of upper portion of sternum the heart's action can be heard accompanied by a slight bellows sound.	Aneurism of the innominata; internal jugular and brachio-cephalic veins obliterated; lymph in the pericardial sac; thoracic duct involved in the dense structures round the tumour.
very indistinct in rist, while none e felt in the bra- subclavian; veins nd neck engorged, ly on the right	Respiration intensely puerile in left lung, very feeble in right; bronchitis in left lung.	Dulness at external end of right clavicle.	Double pulsation at sternal end of right clavicle, with strong impulse, becoming weaker as the heart was approached; no *bruit de soufflet* in any part of the chest.	Aneurism of the innominata; right carotid artery and jugular vein obliterated; right and left venæ innominatæ and subclavian obliterated; arteries of left side unaffected; aorta dilated, its coats thickened; apex of right lung compressed, as also the trachea.
pulse smaller than	. . . .	. . . .	No *bruit de soufflet*.	Aneurism of the innominata had opened into the trachea by a very small orifice; atheromatous deposit on aorta; the vertebral rose from the arch; a coagulum was found in the right subclavian artery.
radial and carotid l weaker than the hrilling sensation he subclavian and	. . . .	. . . .	. . . . .	Aneurism of the innominata and arch of the aorta had displaced the trachea and œsophagus to the left, and the descending vena cava to the right, it pressed the right subclavian and carotid arteries against the spine; aortic valves ossified.

No.	By whom Reported.	Sex.	Age.	Tumour and Impulse.	Dyspnœa.	Cough and Voice.	Dysphagia.	
27	Dr. Mott,	M.	51	Pulsating tumour under the insertion of right sterno-mastoid and within the chest, as low as the second rib.	Wheezing in breathing, increased by exercise.	. . . . .	. . . .	Œde num righ
28	Dr. Morrisson.	M.	42	A pulsating tumour between the insertions of the right sterno-mastoid.	Dyspnœa increased by walking.	. . . . .	. . . .	Pain side neck card
29	M. Genest,	M.	44	Pulsating tumour extended from right clavicle to the chin; gangrenous ulcer at its apex.	Paroxysms of dyspnœa.	. . . . .	Difficulty in swallowing.	Righ lysed
30	M. Michon,	. .	. .	A pulsating tumour, a little to the right of the median line of sterno-mastoid, had pushed the larynx to the left side.	Attacks of suffocation.	Voice short, finally inaudible; slight cough.	No dysphagia.	No h gia.
32	M. Boinet,	M.	57	A pulsating tumour, on right side, extended from the sixth rib to the superior border of thyroid cartilage; trachea dislocated and compressed; clavicle dislocated.	Orthopnœa.	Violent fits of coughing, causing congestion of face, and loss of consciousness; voice feeble.	. . . .	Pain head
33	M. Mazet,	F.	47	Pulsating tumour behind right sterno-mastoid muscle, extending into the chest.	Dyspnœa.	Cough, with expectoration.	. . . .	. .
34	M. L'Hommeau,	M.	40	A pulsating tumour in the neck.	Dyspnœa.	. . . . .	. . . .	Pain œsop righ neck left and
35	M. Chapelle,	M.	46	A pulsating tumour, its base covered by the sternum and inner part of right clavicle.	Difficulty of breathing. Died asphyxiated.	Voice a little hoarse.	Slight difficulty in swallowing.	Pain shou arm very
37	M. Dubrueil,	M.	37	Pulsating tumour above the right sterno-clavicular articulation; clavicle dislocated, and sternum pushed forward before death. A second tumour as high as fifth cervical vertebra.	Dyspnœa increased as the tumour enlarged.	Frequent cough; voice weak and cavernous.	. . . .	Pain part low neck arm
39	M. Dubrueil,	M.	Middle aged.	A pulsating tumour extended from internal third of right clavicle (where it first appeared) to sternal insertion of left sterno-mastoid, and into the chest as low as the third rib.	Dyspnœa.	Violent fits of coughing, without expectoration; voice raucous; aphonia at times.	Deglutition always difficult, and sometimes impossible.	Rig mat side was
44	Dr. Hampeis,	M.	62	A pulsating swelling between second and third ribs, on right side, finally it spread over the sternum.	. . . .	Cough, with bloody expectoration.	Difficulty in swallowing.	Fee dow bur the
45	Dr. De Renzi,	M.	46	No tumour mentioned.	Difficulty in breathing; trachea filled with mucus difficult to be expectorated.	Convulsive cough, and slight aphonia.	Difficulty in swallowing.	Pai vici loss bili arm in t ing side and nur

rteries, and Veins.	Respiration.	Percussion.	Auscultation.	Post Mortem Appearances.
ght radial pulse, carotid on that ker than the left.	Respiration interrupted by pressing the tumour.	. . . .	*Bruit de soufflet* over the tumour.	Aneurism of the innominata engaging the root of the carotid and subclavian; trachea quite flattened; clavicle dislocated.
re on the right did not diminish of tumour, but se became fuller; on right subcla- idered pulsations mour stronger.	. . . .	. . . .	. . . . .	Aneurism of the innominata and root of carotid; it had not ruptured; the arch dilated, and calcareous deposits on it.
pulse weaker than	Respiration accompanied by hissing sound.	. . . .	. . . . .	Aneurism of the innominata; the carotid and subclavian of the usual size, and not compressed; trachea, larynx, and œsophagus very much compressed from the right side.
radial pulse very ompared with the	Respiration short, in fine scarcely audible.	Right sterno-clavicular articulation dull on percussion.	*Bruit de soufflet* over the chest, extending into right carotid.	Aneurism of the innominata; trachea pushed to the left side, but not flattened; right recurrent nerve compressed.
carotid pulsated bly than the left; lses equal; veins bout the tumour	Expiration sibilant.	Superior part of the chest dull on percussion.	*Bruit de soufflet* over the tumour; no abnormal sound on left side; œgophony on the right as high as first dorsal vertebra.	Aneurism of the innominata compressing the carotid, trachea, bronchi, and œsophagus; the latter perforated; larynx also perforated; trachea so compressed as to be triangular; pulmonary artery and veins compressed; aortic valves insufficient.
ormal sound with s action; no pul- the right radial, or carotid.	. . . .	. . . .	A sound analogous to first sound of heart heard under right clavicle; mucous and sonorous râles.	Vast aneurism of the innominata; right subclavian and carotid impermeable; trachea displaced a little to the left, and compressed; no dilatation of the aorta; softened tubercles in both lungs.
sation in left ra- umeral arteries; al normal.	Sibilant respiration.	. . . .	Double pulsation heard at the top of sternum; sibilant and sonorous râles over the chest.	Dilatation of innominata; recent clot in left subclavian vein; left carotid arose by two distinct branches from the arch.
adial pulse smal- he left.	. . . .	. . . .	Prolonged impulse over tumour, then a pause, followed by a short, clear sound; the motion and sounds not synchronous with heart.	Aneurism of the innominata engaging the carotid and subclavian.
radial and bra- ries very feeble.	Respiration sibilant.	. . . .	*Bruit de râpe* over the tumour; *bruit de soufflet* over the chest; pulsations of tumour easily distinguished from those of the heart.	The innominata double its usual size, and almost entirely obstructed by solid fibrine; aneurism of transverse portion of the arch, inclining to the right, had burst into the trachea; the tumours flattened after death.
se natural; right id carotid very o pulsation in poral.	Respiration loud and wheezing.	. . . .	Loud *bruit de soufflet* over the part within the chest, while a purring murmur is heard over the external part of the tumour.	The entire of innominata aneurismal; arch perfectly healthy; a coagulum rendered right carotid impermeable; subclavian diminished in size; flattening of four rings of trachea; sac had burst externally.
action irregular; ight side of chest occasional faint-	. . . .	. . . .	. . . . .	An enormous aneurism of innominata had absorbed the upper part of sternum and superior ribs on right side.
n of heart irre- eft pulse very o pulsation in ial, brachial, or	. . . .	Entire chest dull on percussion.	Pectoriloquism over inferior of right lung anteriorly, and signs of cavity.	Aneurism of innominata, engaging the aorta, filled by a mass of fibrine, extending into the carotid; tubercles and a cavity in the inferior lobe of lung.

On contrasting the foregoing Table with Dr. Greene's, there will be found—

In Dr. Greene's Table of twelve cases of aneurism of the transverse portion of the arch:

1st.—External tumour in *one* case.

2nd.—Prominence of the upper portion of the sternum, or fulness of the infra or supra-clavicular region, in *eight* cases.

3rd.—Absence of tumour or elevation in *four* cases.

4th.—*No* dislocation of larynx or trachea.

5th.—*No* case in which dislocation of the clavicle occurred.

6th.—General venous congestion over the chest in *seven* cases.

7th.—Enlarged veins, confined to the chest and left arm, in *one* case.

8th.—Dyspnœa, more or less intense, in *eleven* cases.

9th.—Cough in *twelve* cases.

10th.—Hemoptysis in *two* cases, without tubercles existing in the lungs.

11th.—Voice altered in *six* cases.

In the Table of twenty-four cases of aneurism of the arteria innominata:

1st.—External tumour in *twenty-one* cases.

2nd.—Well-defined tumour above the inner third of the right clavicle and sternum in *twenty* cases; between second and third ribs on the right side in *one* case.

3rd.—No tumour mentioned in *three* cases.

4th.—Dislocation of larynx or trachea in *four* cases.

5th.—Clavicle dislocated in *four* cases.

6th.—Venous congestion of the right side of the body in *four* cases.

7th.—Venous congestion not confined to left side of the body in *any* case.

8th.—Dyspnœa, more or less intense, in *nineteen* cases.

9th.—Cough in *fifteen* cases.

10th.—Hemoptysis in *three* cases; one had tubercular cavities in the lungs.

11th.—Voice altered in *ten* cases.

12th.—Dysphagia in *nine* cases.

13th.—Pain over and around the chest in *eight* cases.

14th.—Pain confined to left side of the chest in *one* case.

15th.—Pain in right side of the head, neck, and right arm, not mentioned in *any* case.

16th.—Pain did not extend in *any* case from the right to the left side of the body.

17th.—Œdema not confined to right arm in *any* case.

18th.—Œdema of both arms in *two* cases.

19th.—Œdema of the lips and ankles in *one* case, and of the eyelids in *another*.

20th.—Œdema of the glottis in *two* cases.

21st.—Numbness of left arm in *one* case.

22nd.—Partial loss of sensation or motion was not confined to right arm in *any* case.

23rd.—Numbness of both arms in *one* case.

12th.—Dysphagia in *ten* cases.

13th.—Pain over the chest in *one* case.

14th.—Pain through left side of the head and neck in *one* case.

15th.—Pain in right side of the head, neck, and right arm in *twelve* cases.

16th.—Pain beginning in right side of the head, neck, or right arm, but finally extending to the left side in *two* cases.

17th.—Œdema of right arm in *four* cases.

18th.—Œdema began in the right and extended to the left arm in *one* case.

19th.—Œdema of the right side of the face and left arm in *one* case.

20th.—Œdema of the glottis *not* mentioned.

21st.—Numbness of left arm in *one* case.

22nd.—Partial loss of sensation or motion in right arm in *four* cases.

23rd.—Numbness began in the right arm and extended to the left in *two* cases.

24th.—Pulsations of left radial artery weaker than the right in *three* cases.	24th.—Pulsations of right radial, brachial, subclavian, or carotid arteries, weaker than on the left side in *nineteen* cases.
25th.—Pulsation of right radial weaker than the left in *two* cases.	25th.—Pulsation in left radial weaker in *one* case.
26th.—Pulsation not absent in both radials in *any* case.	26th.—Pulsation absent in both carotids in *one* case.
27th.—Respiration stridulous or wheezing in *eight* cases.	27th.—Respiration stridulous or wheezing in *five* cases.
28th.—Percussion gave a dull sound over the part of the chest occupied by the tumour in *nine* cases.	28th.—Percussion gave a dull sound over the part of the chest occupied by the tumour in *five* cases.
29th.—Respiratory murmur weaker in left than in right lung in *eight* cases.	29th.—Difference in respiratory murmur *not* recorded.
30th.—Respiratory murmur weaker in right lung in *one* case.	30th.—Respiratory murmur weaker in right lung in *one* case.
31st.—Double sound, similar to the sounds of the heart, heard over the tumour in *one* case.	31st.—Double sound, similar to the sounds of the heart, heard over the tumour in *six* cases.
32nd.—An abnormal arterial mumrur heard over the sac in *eight* cases.	32nd.—An abnormal arterial murmur heard over the region of the sac in *ten* cases.
33rd.—In *four* cases it is stated that no abnormal arterial murmur was heard.	33rd.—In *three* cases it is stated that no abnormal arterial murmur was heard.

The order of frequency of the symptoms and signs were as follow:

In the twelve cases of aneurism of the transverse portion of the arch:		In the twenty-four cases of aneurism of the arteria innominata:	
Cough occurred in	12	External tumour in	21
Dyspnœa in	10	Alteration in the arterial circulation in	20
Respiratory murmur altered in	9	Dyspnœa in	19
Dysphagia occurred in	9	Pain in	16
Pain in	9	Cough in	15
Dulness on percussion in	9	Dysphagia in	10
Congestion of superficial veins in	8	Abnormal arterial murmur in	10
Stridulous respiration in	8	Voice altered in	10
Arterial murmur in	8	Partial paralysis in	7
Voice altered in	6	Double sound over the sac in	7
Alteration in the arterial circulation in	5	Œdema in	6
Œdema occurred in	3	Stridulous respiration in	5
Partial paralysis in	2	Dulness on percussion in	5
Hemoptysis in	1	Larynx or trachea dislocated in	4
Double sound over the sac in	1	Clavicle dislocated in	4
Larynx dislocated in	0	Venous enlargement in	4
Clavicle dislocated in	0	Hemoptysis in	2
External well-defined tumour in	0	Respiratory murmur altered in	1

From this it is evident, that there is a well-marked difference as to the probabilities of certain symptoms and signs presenting themselves in these affections, and I shall examine them in the order of their frequency in innominatal aneurisms.

External Tumour.—Aneurisms tend to enlarge in the direction in which the distending force is applied; hence, a sac situated immediately above the aortic valves passes downwards

in obedience to the force of the returning column of blood, and as the direction of the current in the innominata is upwards and to the right side, a tumour formed on this vessel presents itself, in the great majority of cases, above the inner third of the right clavicle,—while the high position of the artery in the neck renders this one of the earliest symptoms. In aneurism of the transverse portion of the arch, the sac comes in contact with the posterior surface of the sternum; hence, external tumour is by no means so frequent as in the former case, and when it does occur it generally appears at one side of that bone, usually on the left, as the current is passing towards that side of the body. If the aneurism forms at the most superior part of the arch, it is resisted by the convex surface of the trachea behind, and by the sternum in front; then, passing upwards, it appears between the sterno-clavicular articulations; but in these exceptional cases the tumour does not show itself in the neck until the sac has acquired considerable size.

Alteration in the Circulation.—M. Tarral[a], in a review of Wardrop's book on Aneurism, remarks, that feebleness of the pulsation in an aneurismal artery may be caused by the weight and volume of the sac compressing the vessel; "but if this compression is not produced, its caliber is augmented, and then we ought not to expect a diminution in the pulses, but rather an increase in intensity." This is in direct opposition to the law, that a dilatation on a tube, through which fluid is sent *per saltum*, has the effect of weakening the force of the current and converting an interrupted into a continuous stream, while the pressure of the sac on the vessel may still further lessen the volume of the fluid; but this latter condition is not essential to its production. The arteries given off from an aneurismal vessel ought, therefore, to pulsate weaker than in the healthy condition, or than the corresponding arteries on the opposite side of the body. We might therefore conclude, from *a priori* rea-

[a] Journal Hebdomadaire de Médecine, 1829, vol. iv. p. 560.

soning, that in innominatal aneurism the pulses on the right side of the neck and in the right arm would be weaker than those in the left, and this is borne out by the cases before us.

Dr. Greene[a] remarks, that "retardation of the pulse was only well marked in the eighth case; and when it occurs, it is more characteristic of pressure on the main trunk than a feeble pulse in one wrist, which latter may depend on a high division of the radial;" and though the pulse at the wrist is naturally a little later than the impulse of the heart, still the interval must have been longer than usual in this instance, otherwise it would not have been particularly noticed. The same was observed in Dr. Henderson's case, No. 8; and this is confirmed by M. Dubrueil, who, alluding to this sign as a help in the diagnosis, says[b], "that when a tumour is situated on the innominata, or on the origin of the left subclavian, the pulse of the corresponding side ceases to be synchronous with that in the opposite arm,—sometimes even pulsating after its fellow, as well as being less developed;" but the diagnostic value of this sign can only be determined by future observations. Aneurism of the arch must affect equally the pulses on both sides of the body; but the tendency of the sac to enlarge towards the left should make us expect that it would in some cases compress the arterial trunks on that side, thereby causing the left pulses to be the weaker; this is confirmed by Dr. Greene's and by other cases. A tumour of any kind pressing on the great vessels will cause comparative weakness, or even total absence of pulsation in the carotid, subclavian, or brachial; hence the fact of the right pulses being weaker can only aid us in the diagnosis, *after* the aneurismal character of the disease has been established by other symptoms: for example,—Dr. Watson[c] gives a case of exostosis on the first rib causing displacement of

[a] *Loc. cit.* page 23.

[b] Obs. et Réflex. sur les Anévrysmes de la Portion Ascend. et de la Crosse de l'Aorte, p. 157.

[c] Lectures on the Principles and Practice of Physic, Third Edition, vol. i., p. 308.

the clavicle and absence of the pulse in the corresponding arm. Another source of error is, the occasional anomalous distribution of the vessels; this most frequently occurs in the radials, but by examining the other vessels on the same side we shall be enabled to correct an opinion formed on the state of one artery: a clot, or any change in the interior of the vessel, may lessen the circulation through it, but the obstruction is at times only temporary, and if pulsation is absent or almost imperceptible in one vessel, while it remains also weaker in the other arteries on the same side, it would increase the probabilities that the trunk from which these vessels arose was aneurismal; for example,—if the right radial is obstructed, the velocity of the current in the right carotid will be increased until the effects of the aneurism are sufficient to counteract the hydraulic law, that if there are two orifices for the exit of a fluid, the closing of one increases the velocity of the current through the other. It is in this way the increase in size of the anastomosing vessels after a ligature has been applied is to be explained; and it were well to bear this observation in mind before operating on large arteries,—for in Case No. 1, pulsation could not be felt in the right carotid, but it re-appeared on the second day after the subclavian had been tied. This hydraulic law is well illustrated by Case No. 28, in which pressure on the right carotid increased the force of the pulsations in the subclavian, and *vice versâ;* but in order to produce this effect, both outlets must be free,—for in Case No. 2, pressure on the right subclavian increased the force of the pulsations, the sac being obliged to act more strongly, in order to make what had originally passed through two vessels now pass through one; but the pulsations were diminished by compressing the carotid,—for, on obstructing as here the main outlet, the sac became so full that it was unable to contract on its contents. In Case No. 4, the subclavian appears to have been in part obstructed, while the carotid remained comparatively free; and pressure on the subclavian causing the *bruit* in the carotid to cease is to be explained by the latter vessel be-

coming distended with blood, thereby removing the conditions necessary for the production of arterial murmurs; and the *bruit* being increased in the subclavian when pressure was applied to the carotid is referrible to the obstruction in the former being in part overcome, and the current passing with greater velocity through this partly-filled artery.

Dyspnœa.—We have seen that dyspnœa is rather less frequent in innominatal than in aortic aneurisms, and this is to be accounted for by the enlargement of the one being prevented by the sternum, thereby causing it to press more forcibly on the trachea than an innominatal aneurism could, as the latter can extend in all directions. Further, the lung or pulmonary artery is far more liable to be compressed in cases of aortic aneurism; and the left pneumogastric nerve, crossing the arch, brings it frequently in contact with aneurism of that part of the vessel, while the position of the right pneumogastric does not subject it to be compressed by aneurism of the innominata. Thus the anatomical relations explain why dyspnœa should be more frequent in aortic aneurism.

Pain.—This symptom appears to be less frequent in innominatal aneurism, and it has a marked tendency to be confined to the right side of the neck, right shoulder, and arm, extending from this to the opposite side in some cases. This is to be explained by the position of the sac, which requires to have enlarged considerably before it can press on the nerves going to the left side of the body. In some cases the pain was so intense as to form the chief subject of complaint, but its limitation, intensity, paroxysmal and apyrexial character, prove that it belongs to that class of pains caused by pressure on the nerves. There is in many cases a dull, gnawing, constant pain, which Dr. Law[a] considers to originate in the changes produced in bone by the pressure of an aneurismal tumour. That this double character of pain occurs independent of aneurism will be seen by re-

[a] Dublin Journal of Medical Science, First Series, vol. xxi. p. 469.

ferring to Dr. Battersby's[a] paper on Exostosis of the Spine; and further, bone may be extensively destroyed without pain being complained of; this Dr. Redfern[b] has proved to be true regarding articular cartilage; and the following cases extend its applicability to the osseous system:—An aneurism[c] of the transverse portion of the arch had caused an opening, the size of a shilling, in the sternum, through which the internal communicated with the external tumour, yet the patient enjoyed good health, and never complained of pain. M. Valleix[d] records a case in which the second, third, fourth, and fifth dorsal vertebræ were completely destroyed, the sac being only separated from the cord by the membranes, yet neither pain nor other symptom had occurred that could lead to the supposition that such extensive disease existed. An important question here suggests itself, viz., Do cancerous or other non-aneurismal tumours cause absorption of bone? M. Dubrueil[e] observes, "that aneurisms are not the only intra-thoracic tumours that dislocate, destroy, and perforate bones;" and though such cases may be recorded, I can only find two that bear upon this inquiry, viz.: cancer[f] of the œsophagus immediately above the cardiac orifice of the stomach, in which the bodies of the vertebræ behind the tumour were "softened and in a state of dissolution;" and M. Cayol[g] states that he has seen the dorsal vertebræ corroded by the contact of a cancerous mass. If these cases can be considered as examples of the absorption of bone, they form exceptions to a rule which, if placed beyond doubt, would form a valuable diagnostic symptom of aneurismal disease, viz., that aneurismal sacs are the only intra-thoracic tumours which by their pressure can cause absorption of bone.

[a] Dublin Journal of Medical Science, First Series, vol. xxiv. p. 86.

[b] On Diseases of Articular Cartilages. [c] Gazette des Hôpitaux, 1850, p. 482.

[d] Archives Générales de Médecine, vol. xxii., 1850, p. 430.

[e] Observ. et Réflex. sur les Anévrysmes de la Portion Ascend. et de la Crosse de l'Aorte, p. 165.

[f] Thèse, par M. Aussant, No. 19, 1801.

[g] Dictionnaire de Médecine, en 30 vols. Art. "Estomac," p. 365.

Cough.—It is only necessary to allude to the position of the tumours, to the relations of the recurrent laryngeal winding round the arch on the left side and the subclavian on the right, and to the communication of this motor branch with the superior laryngeal or sensory nerve of the larynx, in order to explain why cough should be the most frequent symptom in aneurisms of the arch, while it was present in only five-eighths of the cases of innominatal aneurism.

Dysphagia.—This symptom is nearly twice as frequent in aortic as in innominatal aneurism, although, looking to the relations of parts, the reverse ought, at first sight, be the case; for it is difficult to conceive how the œsophagus could be compressed, as the trachea intervenes between it and the arch, while the lateral and high position of the innominata would appear to have placed it in circumstances more favourable for the production of dysphagia. It is to physiology we must look for the explanation of this apparent anomaly.

M. Claude Bernard, in his lectures at the College of France during the summer months of 1851, demonstrated, that section of the pneumogastric nerves caused forcible contraction of the lower part of the œsophagus. A rabbit, in whom these nerves had been divided, ate after the operation, but in a short time the food was regurgitated as fast as swallowed, and on killing the animal it was found that none of it had entered the stomach; the entire mass lay piled up in the œsophagus; and M. Bernard stated, that if the experiment was performed on a horse, the animal killed, the œsophagus cut across, and the stomach filled with water through the pyloric extremity, the cardiac orifice would contract with so much force that pressure might be applied on the stomach sufficient to rupture its walls, yet none of the fluid would escape through the cut end of the œsophagus, and this contraction persists for twenty-four hours after death. Dr. Greene remarks[a], "that in thoracic aneurism the

[a] *Loc. cit.* p. 20.

dysphagia is deep-seated or intra-thoracic; but at the same time a spasmodic stricture may exist higher up in the tube;" and he goes on to observe, "that stricture from scirrhus, or other organic lesion of the œsophagus within the chest, is sometimes accompanied by a similar spasmodic state of the tube higher up, and can be explained on the doctrine of reflex irritation through the spinal marrow;" thus he was obliged to admit the existence of what at the time he wrote was a purely imaginary state of spasm, in order to explain the frequent occurrence of dysphagia in cases where the *post mortem* failed to exhibit marks of compression of the œsophagus; on examining Dr. Greene's Table, I find in Cases No. 7 and 8 dysphagia existed, yet no mention is made of the state of the œsophagus; in No. 12 this symptom existed, but there was "no apparent pressure on the œsophagus," and in No. 4 dysphagia was not complained of, though the aneurism "formed an oval tumour in the œsophagus." The frequency of dysphagia in aneurisms of the transverse portion of the arch is therefore, I believe, in many cases to be explained by the pressure exercised by the sac on the left pneumogastric nerve, as it passes over the arch, causing forcible contraction of the lower part of the œsophagus. This will be proved when considering the respiratory phenomena.

Abnormal Arterial Murmurs.—These sounds have a tendency to extend in the direction in which the current is passing, hence they are heard in the right carotid or subclavian in innominata aneurisms, while the murmur was confined to the region occupied by the sac in all Dr. Greene's cases in which this sign occurred, and if the sound was propagated in this latter affection, it would most probably be into the vessels on the left side, or, as has been frequently observed, downward along the spinal column posteriorly. It is improbable that a lesion confined to the innominata would cause a murmur to pass along the descending aorta, as, in order to get into this vessel, it should be prolonged in the opposite direction to that

of the blood passing through the former: the only case in which it might probably occur is that of an innominatal sac compressing the arch so as to diminish its caliber. The direction in which the arterial murmur extends will, therefore, be a guide to us in the diagnosis, and future observations should be directed to determine if an innominatal aneurism is capable of causing a murmur along the descending aorta. Dr. Greene[a] has often heard a *bruit de soufflet* and impulse in the arch, or even in its branches, in cases where tubercles had begun to be deposited in the lungs. M. Dubrueil[b] made a similar observation in a case of acute phthisis, in which he was led to suspect the existence of an aneurism of the arch, but the autopsy showed it to have been caused by the convexity of the arch being on a level with the superior end of the sternum. Professor Harrison[c] remarks, that "the innominata in some subjects ascends much higher than usual in the neck before it divides; in some persons I have seen it distinctly pulsating on the trachea above the sternum." This explains such cases as that of Dr. Houston's[d], and proves that abnormal pulsation and perhaps murmur may exist without any other lesion being present than an unusually high position of the vessels.

Alteration of the Voice being most frequent in aortic aneurism is to be attributed to the position of the sac, rendering it more liable to compress the trachea or recurrent laryngeal nerve, than if the disease was confined to the innominata. In order to prove that pressure on the latter is capable of altering the tone of the voice, it is only necessary to refer to the highly interesting case brought before the Pathological Society of London, by Dr. Brinton[e], as well as that recorded by Mr. Birkett[f]. Œdema of the glottis, which Dr. Greene includes

[a] *Loc. cit.* p. 29. [b] *Op. cit.* p. 154.

[c] Surgical Anatomy of the Arteries, 1839, p. 24.

[d] Mentioned in Dr. Greene's paper, *loc cit.* p. 28.

[e] Medical Times and Gazette, January, 1852, p. 97.

[f] Medical Times and Gazette, February, 1852, p. 136.

among the causes of this phenomenon, did not occur in any case of innominatal aneurism.

Partial Paralysis.—This symptom was present in nearly a third of the cases of innominatal aneurism, and the relations of the tumour with the right brachial plexus explains why loss of sensation or motion began in the right arm in all the cases, with but one exception. Weakness of the left arm was complained of in one case of aortic aneurism; partial loss of power over both arms in another; but this latter symptom is comparatively rare.

Œdema began on the right side in the six cases of innominatal aneurism in which this symptom is mentioned, and may have been caused by pressure of the sac on the right vena innominata, rendered still more probable by the enlargement of the superficial veins being greater on the right side; still, pressure on the right common lymphatic duct may have been an additional cause of œdema.

Double Sound over the Sac.—The difference in the frequency with which this sign occurs in these affections is very remarkable, as it was heard seven times in innominatal, and only once in the cases of aortic aneurism.

Two opinions are entertained regarding this phenomenon, in one it is considered to originate in the sac, in conformity with which view Drs. Bellingham[a] and Lyons[b] have endeavoured to explain its occurrence; in the other it is referred to the second sound of the heart being propagated to the tumour. That the aneurismal sounds are often louder than those of the heart does not disprove that they may have originated in that organ, for their intensity would be increased by its being multiplied on the walls of the sac, in the same way as Dr. Stokes has explained why the pulsations of the aneurism are frequently more violent than those of the heart[c], and the state of parts through which

[a] Dublin Medical Press, vol. xix. p. 260, *et seq.*

[b] Dublin Quarterly Journal of Medical Science, New Series, vol. ix. p. 343.

[c] Dublin Journal of Medical Science, First Series, vol. v. p. 432.

the sounds pass before they reach the ear, explains the difference in their tone. In a case of aneurism of the arch of the aorta, which I had an opportunity of examining in the Royal Infirmary of Edinburgh, double sound was heard over the tumour, without the faintest murmur, while a distinct *bruit de soufflet* accompanied both sounds of the heart; this, and similar cases, argue in favour of the opinion that an aneurismal sac can, *per se*, produce sounds similar to those of the heart, for, on the principle just stated, murmurs having their origin in the aortic valves ought to be louder over the aneurism than at the heart.

Dr. Watson[a] states, that double sound has been heard by himself and others over a popliteal aneurism, and he refers it to the flapping of the aortic valves. But how are we to explain that the faintest attempt at the production of a second sound is not heard in such cases either above or below the dilatation, and yet admit, that the heart's sounds are propagated to so great a distance as the popliteal artery is from the centre of the circulation. The position of innominatal aneurisms is such as would allow the forcible expansion and contraction of the sac, and this might in part explain the frequency of this phenomenon in disease of that vessel; but we are here met by the paradox, that aneurisms of the abdominal aorta, which are in no way confined by surrounding parts, rarely, if ever, give origin to a double sound. We are therefore obliged to take the facts as they are presented to us, and while using them for the purposes of diagnosis, trust to future observation for their explanation.

Stridulous Respiration.—It is only necessary to refer to the remarks that have already been made regarding the relations of aortic aneurisms to the trachea, pneumogastric and recurrent laryngeal nerves, in order to explain why stridulous respiration is nearly twice as frequent in these as in innominatal aneurisms.

[a] Lectures on the Principles and Practice of Physic, vol. ii. p. 311, Third Ed.

Percussion.—The exact size of the tumour may be marked out by percussing on the pleximeter, as stated by M. Piorry in Case 41; but the position of aortic aneurism renders this more necessary than in innominatal aneurism, as in the latter the sac appears, almost as soon as formed, above the right sterno-clavicular articulation, and we see by the Table that dulness existed in nine cases of the former, and in only five of the latter disease; but this is a valuable means of diagnosis, as it enables us to map out on the skin the exact position and size of the intrathoracic tumour.

Displacement of the Larynx or Trachea.—Aortic aneurisms seldom reach high enough, or occupy a sufficiently lateral position in the neck, to cause displacement of any part of the air-tube, and even aneurisms of the innominata must have acquired considerable size before they produce this symptom; it occurred in four cases of the latter, and in none of those contained in Dr. Greene's Table.

Dislocation of the Right Clavicle.—Nothing could be more favourable for its occurrence than the position of the innominata, but the free exit from the chest allowed to these aneurisms renders this one of the least frequent symptoms, and though it occurs still less often in aortic aneurisms, yet its analogue, namely, protrusion of the sternum, is observed in many cases of this latter affection.

Venous Congestion.—From the cases before us it appears that this is among the most frequent symptoms of aortic, and one of the rarest in innominatal aneurisms, but the proportion in which it occurs in the latter will be probably increased by future observations. Dr. Greene remarks[a], "that the more localized or limited the congestion, the greater probability of its dependence on the obliteration of a single trunk; the more general or unlimited, the greater the probability of its dependence on valvular disease of the heart." We may, perhaps, go still farther, and state, that in cases of aneurism, the more the ve-

[a] Dublin Quarterly Journal of Medical Science, New Series, vol. ii. p. 8.

nous engorgement is confined to the right side of the body, the greater the likelihood of the disease being innominatal, for though the left vena cava crosses the arteria innominata, still, in all cases of disease of that vessel in which this symptom appeared, it began at the right side of the chest, neck, or right arm.

Hemoptysis.—This is the rarest of all the symptoms of internal aneurisms, as will be seen by reference to the Tables.

Alteration in the Respiratory Murmur.—M. Chomel[a] was the first to point out, that difference in the intensity of the respiratory murmur in the opposite lungs, occurring without disease of these organs, was indicative of internal aneurism. He observed complete absence of respiration over the left side in a young girl suffering from aneurism of the transverse aorta, and he considered it to be caused by the pressure of the sac on the left bronchus. Mr. Porter[b] was the first among British authors to mention this sign; and Dr. Stokes drew particular attention to its diagnostic value, in his Researches on the Diagnosis and Pathology of Aneurism[c]. In eight of Dr. Greene's cases the respiration was weaker over the left lung; and in the case of innominatal aneurism recorded by Dr. Stokes, No. 19, the right lung acted very feebly; but as the sac only compressed the trachea, it ought to have produced the same effect on both lungs. Can, then, the respiration be rendered weaker in one lung, without the lung or bronchus leading thereto being compressed or obstructed? M. Claude Bernard divided the pneumogastric nerves in a dog,—the respiration immediately fell from twenty to thirteen per minute; and there is every reason to believe, that section of one of these nerves would produce slowness and feebleness of respiration in the corresponding lung. In Dr. Stokes' case, "the vagus nerve also was

[a] Archives Gén. de Médecine, 1829, vol. xxi. p. 447.

[b] Dublin Journal of Medical Science, First Series, vol. iv. p. 211.

[c] Ibid. vol. v. p. 416.

compressed:" this was, I believe, the cause of weak respiration in the right lung[a].

From the foregoing review of the symptoms present in these affections, the following rule may be deduced, viz.: *That the symptoms and signs of innominata aneurisms have a general tendency to occur on the right side of the body, and those of aneurism of the transverse portion of the arch of the aorta, on the left.* This has not escaped the notice of many of the authors

[a] In order to confirm or refute this opinion, I instituted the following experiment:

March 12. A two-year old, well-formed, healthy ass was cast, and the right carotid artery exposed, by Mr. R. Olden, Veterinary Surgeon; the sympathetic nerve was separated from the pneumogastric, and I excised a quarter of an inch of the latter; Dr. Hare was present at the operation. At 6 o'clock, immediately after the nerve was excised, respiration was louder and quicker than natural in both lungs, but in a few minutes the action of the right lung became weaker, and at 7 o'clock it acted feebler than its fellow on the opposite side; at 8 o'clock Dr. John Murphy examined the animal, and gave it as his opinion that the right lung acted feebler than the left.

March 13, 1 o'clock. Dr. Murphy observed a marked difference between the intensity of the respiratory murmur in the right and left lung, it being weaker on the right side.—4 o'clock; Dr. Finn examined the chest, and considered the respiration in the right lung to be weaker than in the left.—5 o'clock; Mr. G. Olden, Veterinary Surgeon, measured the circumference of the chest as accurately as possible, and it was evident that the right side was an inch smaller than the left; the latter expanded much more than the former, and the right intercostal muscles were in violent action, endeavouring to increase the depth of the right thoracic cavity, and thereby facilitate the entrance of air.

March 14, 5 o'clock. Very feeble respiration in the right lung. On applying the ear to this side, and placing the hand over the back, so as to come in contact with the ribs on the left side, the latter are felt moving freely, while the ribs under the ear are comparatively fixed.

March 15, 10 o'clock. Drs. Popham and Hare, after a careful examination, concluded that the right side did not expand as much, nor yield as loud a respiratory murmur, as the left. It is difficult to determine if dysphagia exists, but the animal appears to have slight difficulty in swallowing fluids.

I have thus succeeded in proving, *that interrupting the functions of the pneumogastric nerve produces feeble respiration in the corresponding lung; hence, feeble respiratory murmur on one side of the chest cannot be considered as proof of a pulmonary lesion; nor is it necessary that an air-tube should be compressed to produce this phenomenon.*

who have written on the subject, and whose opinions will now be briefly alluded to.

Wardrop[a] remarks, that in aneurism of the innominata "the tumour rises up from below the sternum and on the tracheal edge of the sternal portion of the mastoid, at which place the vessel is most uncovered; the situation of the tumour, however, varies according to the part of the artery that is affected:" he goes on to state, that "the force of the pulse is usually diminished in the branches of a trunk affected with aneurism; and when the innominata is the seat of disease, the circulation in the subclavian and carotid will be more or less influenced." Dr. Crisp observes[b], "that the *bruit*, if any be present, will be heard on the right and upper part of the sternum; that turgescence of the veins of the neck, and occasionally œdema of the hand and arm, will result from the pressure of the tumour; that the pulse in the right radial will generally be found smaller than in the left, and be sometimes absent." The French Inaugural Dissertations contain notices of cases considered in their surgical relations, without presenting any remarks on the diagnosis of these diseases. M. Dubrueil states[c], that the symptoms of innominatal aneurism advance much more rapidly than those of aortic, and that the appearance of a tumour in the neck is not followed by the same amount of relief from the most urgent symptoms in the latter as in the former case; that the greater portion of the tumour is extra-thoracic in one, and intra-thoracic in the other; that venous congestion of the head, apoplectic symptoms, œdema of the face and right arm, occur in innominata aneurism; that, as a general rule, the pulse on the side corresponding to the aneurism is weaker, in some cases scarcely perceptible, and not synchronous with its fellow, so much so that in some cases the

[a] Wardrop on Aneurism, p. 84, *et seq.*

[b] On the Structure, Diseases, and Injuries of the Blood-vessels, p. 204.

[c] Obs. et Réflex. sur les Anévrysmes de la Portion Ascend. et de la Crosse de l'Aorte, p. 120, *et seq.*

right radial pulsates after the left; that the right common carotid pulsates weaker than the left; and that it is to the combination of these symptoms we must look for the diagnosis, as no one is pathognomonic. M. Robert[a] is of opinion, that when the tumour pulsates under the insertions of the right sterno-mastoid muscle, and presents single pulsations, we may almost conclude that the innominata is the seat of the disease (double pulsation being considered by this author as indicative of aortic aneurism[b]). M. Velpeau's[c] remarks are similar to those of M. Robert, but he enters more fully into the details of treatment by operation. In the article on this subject in Rust's Dictionary[d], the principles on which the diagnosis is to be made are, that innominatal aneurisms appear at one side of the right sterno-mastoid, and are accompanied by weak pulsation in the right carotid and subclavian.

It may be stated, in general terms, that the difficulties in forming a correct diagnosis are in proportion,—

1st. To the liability of the diseased part changing its position.

2ndly. To its anatomical relations rendering it liable to be confounded with disease of the adjacent organs.

3rdly. To its affording indications but little susceptible of being appreciated by our senses.

4thly. To our imperfect anatomical and physiological knowledge of the diseased structure.

The great difficulty in ascertaining the exact position of aneurisms of the great vessels is referrible to the first two conditions; and of this the following case, recorded by M. Martin Solon[e], is an illustration:—

A woman, aged 67 years, suffering from dyspnœa and pal-

[a] Sur les Anévrysmes de la Région Sus-claviculaire, p. 89.

[b] *Op. cit.*, p. 70.

[c] Dictionnaire de Médecine, vol. xxviii. p. 466, *et seq.*

[d] Theoretisch-Praktisches Handbuch der Chirurgie, vol. ii. p. 57.

[e] Quoted in the Thèse, by M. Bestegui, 1841, No. 195, Obs. 1st.

pitations, was seized with giddiness, and lost consciousness for some hours in December, 1834; face swelled, lips blueish, right pulse becoming gradually weak. On admission to the Hôpital Beaujon, in May, 1835, no pulsation could be felt in the right arm as high as the brachial; upper part of sternum distinctly protruded, giving a dull sound on percussion; a murmur and pulsation, very faint, but synchronous with the pulse, are heard over the dull portion; a *bruit de soufflet* is audible where the subclavian becomes axillary; heart pulsates a little lower down than usual, and a murmur accompanies the first sound; veins on the chest are very prominent, especially at the right side; arms œdematous, more particularly the right, and its temperature is a little lower, but its sensibility remained as acute as that of the opposite arm. *Diagnosis.*—Vast aneurism of the innominata or subclavian; a mass of clot preventing the pulsations being more distinctly felt, and obstructing the circulation in the right arm. Two months after admission, the left arm and veins on that side of the chest became as much swollen as the corresponding parts on the opposite side; intense dyspnœa and dysphagia, with general serous effusion, occurred before her death on the 22nd February, 1836.

Post mortem.—An aneurismal sac, the size of a full-grown fœtal head, arose from the extreme right of the transverse portion of the arch of the aorta; the superior vena cava and venæ innominatæ were obliterated, as was also the arteria innominata which lay to the left and behind the tumour, the opening from the aorta into that vessel being completely closed by a membranous diaphragm; the sac pressed posteriorly against the right bronchus, pushing the trachea and œsophagus far to the left side of the vertebral column. To the right, and external to the obliterated vessels, was a sort of aneurismal diverticulum, as large as an orange, which compressed the upper part of the right lung against the ribs; between this pouch and the lung, the phrenic nerve was seen flattened and incorporated with

the walls of the sac. The aneurism was continuous inferiorly with the ascending aorta, and had displaced the heart downwards; the compressed portion of the right lung was infiltrated with melanotic matter, and presented some softened tubercles scattered through it. (The preparation is in the Dupuytren Museum.)

This case presents us with a set of phenomena that would seem at first sight to be conclusive of the disease being innominatal; but in order to cause these symptoms the sac must be of great size, and the position of the arch allows it to be enormously dilated without producing an external tumour, while an innominatal aneurism would have appeared in the neck long before it caused such well-marked symptoms; if the left carotid or subclavian had been examined, a murmur would probably have been heard in them, or along the spinal column posteriorly; nor could an innominatal aneurism displace the heart downwards.

The following case may be advantageously placed in contra-distinction with that just given, as showing that an aortic can be diagnosed from an innominatal aneurism, though it should appear in the position usually occupied by the sac in the latter affection, and in order to secure the accuracy of the report, I give it in the words in which I took the notes and made remarks thereon three years ago.

Ellen Shea, aged 27, admitted to the South Charitable Infirmary, Cork, May, 1849, suffered from palpitations of the heart for the last eight months, which she supposes to have been caused by a fright. About five months ago she noticed, for the first time, a pulsation at the upper part of the sternum; the veins on both sides of the neck became turgid, and her face œdematous. A fortnight before admission to hospital, her ankles were occasionally swollen, and she had a dull, constant pain between the scapulæ, with, once or twice, slight pain down the right arm. Loss of voice at times; this she de-

scribes as a hoarseness coming and going from day to day. Never had dysphagia or dyspnœa; and her health is in general good, with the exception of occasional slight cough.

June 1st.—Respiration easy, and without stridor; veins at the right side of the neck very full. A pulsating tumour, larger than a walnut, is seen above the right sterno-clavicular articulation, occupying the space between the origins of the sterno-mastoid. Both sides of chest equally clear on percussion, except sternal third of the right clavicle, which is dull. Scarcely any respiratory murmur over the upper part of right lung, respiration loud over the lower part of this side, and in the entire of left lung: no râle in any part of the chest; heart's action quick, *bruit de soufflet* with both sounds, heard at the apex, loudest at the junction of the second with third division of sternum; above this point it becomes less distinct, and is replaced by another sound; well-marked thrill is felt over the tumour, and on applying the stethoscope a loud double sound is heard, accompanied by a harsh, rasping, double murmur, loudest immediately below the right sterno-clavicular articulation, but audible over the entire chest, more particularly on the right side. When the stethoscope is passed in the direction of a line drawn across the chest from the right sterno-clavicular articulation to the apex of the heart, the aneurismal murmurs are heard becoming less distinct until we reach about midway between the tumour and heart's apex; at that point it is replaced by another double murmur of a much softer tone, and which becomes more intense as we approach the heart,—this latter double murmur is that before mentioned as accompanying the heart's action.

Here, then, we have two points of pulsation within the chest, each presenting a double sound, and each giving origin to two sets of double murmurs,—one, the aneurismal, harsh; the other the cardiac, soft; pulse 84 in both wrists, and of equal volume; thrill and *bruit* in carotid and subclavian arteries on *both* sides; *double* sound and murmur are heard down the back as low as

the fifth dorsal vertebra, equally loud on both sides of the spine; lower down the *bruit* is still heard, but the sound is *single*. On the 5th of June she complained for the first time of a violent pulsation in the abdomen, accompanied by a feeling of faintness; "the beating in her neck has diminished;" a tumour, not well defined, can be felt in the epigastric region, pulsating violently, and accompanied by a very loud *bruit;* the pressure of the hand in this region causes a feeling of nausea and severe pain in the back. On the nights of the 13th and 14th of June she had great pain down the right arm, and the fingers became livid; since then she has not had an attack of this pain, and the pulsation of the abdominal aorta has diminished.

Remarks.—In this case we have a complication of diseases, which renders the diagnosis of the exact position of the aneurism a matter of some difficulty: I allude to the existence of valvular disease with aneurism. An aneurism of the innominata would not cause a *bruit* in the *left* carotid or subclavian, but aortic valve disease would produce murmurs in all the arteries; and thus the complication of valve disease with aneurism deprives us of an important diagnostic sign between aneurisms of the aorta and innominata. There can be but little, if any doubt, that the aortic valves are diseased, and that the aneurism is either of the innominata or arch of the aorta. If it were in the innominata, we would expect to have the following symptoms, viz.:—

1st. Dysphagia, dyspnœa, or stridor; the relation of the innominata to the œsophagus and trachea renders aneurism of that vessel more likely to cause these symptoms than an aneurism of the aorta.

2nd. A marked difference between the radial pulses.

3rd. Pain extending up the right side of the neck and head.

4th. Pain down the right arm would be an early symptom.

In this case, the first three symptoms are absent, and

the last has only occurred a few days past: so far we have negative proof that the aneurism is of the aorta. There is also disease of the aortic valves, hence I would infer, that the aorta itself is diseased; again, the aneurismal *bruit* is heard all over the chest, and there is a point on the sternum where it mixes, as it were, with the valvular *bruit.* The double *bruit* of the aneurism[a] is propagated down the back as low as the fifth dorsal vertebra; and in addition to this, there is a set of symptoms that would lead us to suppose that there was a slight dilatation of the abdominal aorta just below the diaphragm. Are we not then justified in supposing, that in the case before us there is disease of the aortic valves, aneurism of the anterior and superior part of the transverse portion of the arch, and probably a dilatation of the abdominal aorta just below the diaphragm?

This diagnosis, made in opposition to the general opinion regarding the seat of the disease, has been confirmed by the *post mortem* examination, of which I cannot give any more particular account than, that she died in the North Infirmary, Cork, under Dr. Hobart's care, and aneurism of the transverse portion of the arch, with diseased aortic valves, were the morbid appearances; and although the first of the propositions on which this diagnosis was made has been now proved to be untenable, still it shows that aortic can be distinguished from innominatal aneurism, even though the tumour should appear in the position usually occupied by the innominatal sac.

The following conclusions, however erroneous and imperfect they must of necessity be, represent, I believe, the present state of our knowledge of the differential diagnosis of aneurisms of the transverse portion of the arch from those of the arteria innominata; and contain, I trust, "some of the elements of a diagnosis that clinical observation will bring to perfection:"—

[a] Has double murmur been observed in any case of non-aneurismal intra-thoracic tumour? I believe this can be answered in the negative, and may form a most important diagnostic sign between aneurismal and all other kinds of tumours.

In aneurisms of the arteria innominata:—

I.—External tumour is a frequent and early sign, situated generally above the inner third of right clavicle.

II.—Arteries in right arm, and on the right side of neck and head, generally pulsate weaker than those on the left.

III.—Stridulous respiration, cough, dysphagia, alteration in the voice, and dyspnœa, are comparatively rare.

IV.—Pain, œdema, and enlargement of the veins, begin in right arm or the right side of neck and head; they may finally extend to the left side.

V.—Partial loss of motion or sensation in the right arm is a comparatively frequent symptom.

VI.—Dislocation of the clavicle, trachea, or larynx, a comparatively frequent occurrence.

VII.—Alteration in the intensity of the respiratory murmur occurs but very rarely, and then it is weaker in the right lung.

VIII. — Abnormal arterial murmurs in the right carotid or subclavian.

In aneurisms of the transverse portion of the arch:—

I.—External tumour occurs comparatively rarer and later, situated generally at the left side of, or under the sternum.

II.—Arteries in left arm, and on the left side of neck and head, generally pulsate weaker than those on the right.

III.—Stridulous respiration, cough, dysphagia, alteration in the voice, and dyspnœa, are comparatively frequent.

IV.—Pain, œdema, and enlargement of the veins, begin in left arm or the left side of neck and head; they may finally extend to the right side.

V.—Partial loss of motion or sensation in the right arm is a comparatively rare symptom.

VI.— Dislocation of the clavicle, trachea, or larynx, very seldom occurs.

VII.—Alteration in the intensity of the respiratory murmur occurs very frequently, and then it is generally weaker in the left lung.

VIII. — Abnormal arterial murmurs loudest in left carotid or subclavian; heard also along the spinal column posteriorly.

ix.—Pressure on the right carotid and subclavian diminishes or stops the pulsations of the tumour.

ix.—Pressure on the carotid and subclavian, on either side, has but little effect on the pulsations of the tumour.

I purpose, at a future period, considering the differential diagnosis of Aneurism of the Arteria Innominata from Aneurisms of the Carotid, the Subclavian Arteries, &c.; and finally, the treatment that has been applied to effect its cure.

NOTE.

The following list of Journals is given in order to prevent those who may continue the investigation of this subject from searching through volumes that have been carefully examined. Among the many periodicals still requiring examination I wish to refer to the Repertorium der Gesammten Dutchen Medizinisch-Chirurgisch Journalistik, by Neumeister, for 1830, part vii. p. 119; and for 1831, part iii. p. 71; part v. p. 114; and part vi. p. 100, to which I found references for cases of innominata aneurism, but unfortunately these volumes were not in any of the Parisian libraries: to the liberality with which these Institutions are opened to foreigners, and to the kindness of the librarians at the Faculté de Médecine, I am indebted for having had the opportunity of collecting materials for this paper.

British and American Journals from 1752 *to* 1851.

American Journal of Medical Science.
American Medical Recorder.
British and Foreign Medical Review.
Dublin Hospital Gazette.
Dublin Hospital Reports.
Dublin Journal of Medical Science.
Dublin Medical Press.
Edinburgh Medical and Surgical Journal.
Edinburgh Monthly Journal of Medical Science.
Guy's Hospital Reports.
Lancet.
London Medical Repository.
Medical and Physical Journal.
Medical Commentaries.
Medical Essays and Observations by a Society in Edinburgh.
Medical Gazette.
Medical Intelligencer.
Medical Observations and Inquiries.
Medical Times.
Medico-Chirurgical Review.
Medico-Chirurgical Transactions.
Provincial Medical and Surgical Journal.
Quarterly Journal of Foreign Medicine and Surgery.
Transactions of King and Queen's College of Physicians, Ireland.
Transactions of a Society for the Diffusion of Medical Knowledge.
Transactions of the Medical and Surgical Society of Calcutta.

Danish, from 1777 *to* 1818.

Acta Regiæ Societatis Medicæ, Hauniensis.

French Journals from 1795 *to* 1851.

Annales de la Chirurgie Française et étrangére.
Annales de la Société de Médecine de Gand.
Annuaire Médico-Chirurgicale des Hôpitaux de Paris.
Archives Générales de Médecine.
Bibliothéque de Planque.
Bulletin de l'Académie Nationale de Médecine.
Bulletin de la Société Anatomique de Paris.
Bulletin des Sciences Médicales.
Gazette des Hôpitaux.
Gazette Médicale de Paris.
Gazette Médicale de Strasbourg.
Journal Analytique de Médecine.
Journal de la Section de Médicine de la Société Académique de la Loire-Inférieure.
Journal de Médecine, par M. Beau.
Journal de Médecine et de Chirurgie Pratique.
Journal des Connaissances Médico-Chirurgical.
Journal Générale de Méd. de Chir. et Pharmacie.
Journal Hebdomadaire des Progrés des Sciences Méd.
La Clinique, Annales de Méd. Universelle.
L'Examinateur Médical.
L'Expérience, Journal de Méd. et Chir.
La Presse Médicale.
L'Union Médicale.
Mémoires de l'Académie Nationale de Méd.
Mémoires de la Soc. de Chirurgie de Paris.
Mémoirs de la Soc. Méd. d' Observations.
Recueil de Mém. de Méd. de Chir. et de Phar. Militaires.
Répertoire Annuel de Clinique Médico-Chirurgicale.
Revue Médicale Française et étrangére.
Thèses pour le Doctorat en Médecine présentée à les Facultés de Médecine de Paris et de Monpellier, depuis 1800.

German Journals from 1808 *to* 1851.

Allgemeines Repertorium der Medizinesch-Chirurgischen Journalistik des Auslandes.
Bibliothek der Pratischen Heilkunde, by Hufeland and Himly.
Jahrbücher der Ausländischen Gesammten Medecin, by Richer and Winter.
Journal der Chirurgie und Augenheilkunde, by Gräfe and Walther.
Journal der Practischen Heilkunde, by Hufeland and Osann.
Magazin der Auslädischen Literatur für Heilkunde, by Gerson and Julius.
Medicinische Jahrbücher K.K. Osterreichischen Staats, by Well and Rosas.
Repertorium der Gesammten Dutchen Medizinisch-Chirurgisch Journalistik, by Kleinert and Neumeister.
Rheinisch Jahrbücher der Medicin und Chirurgie, by Harles.
Zeitschrift für die Gesammte Medicin mit besonderer Rücksicht auf Hospital praxis und Ausländische Literatur, by Dieffenbach, Fricke, and Oppenheim.

Italian Journals from 1814 *to* 1851.

Annali Universali di Medicina Omodei.
Giornale per Servire ai Progressi della Patologia e della Terapeutica, Venezia.

Art. XII.—*Notices of the principal Diseases observed on board the Steamers of the Peninsular and Oriental Steam Packet Company, in the Mediterranean and Indian Seas, during a Period of nearly Seven Years.* By Charles F. Moore, M.D., L. R. C. S. I., Surgeon of the "Ripon."

In the following pages I purpose to divide my observations into two parts; in the first of which I shall treat of the diseases met with in persons, generally in the upper and middle classes of life, going to or returning from India, China, Southern Europe, Asia Minor, Africa, and Australia, being passengers by the steamers; and in the second, to refer especially to the cases of illness and accident amongst the officers and crews of the several ships of the Peninsular Company to which I have been attached as medical officer.

The first part will thus exhibit a view of the earliest phases of illness experienced by persons entering warm climates, in the cases of those going out, as well as the effects of a prolonged residence in the tropics as seen in persons returning from the East; while the second will afford some criterion as to what diseases Englishmen visiting the localities at which the vessels touch, and the seas which they traverse, are liable.

In the arrangement of my subject I have not divided the outward from the homeward voyages; but I may here observe that, as might be expected, almost all of the chronic cases amongst passengers occurred on the return from India.

The passengers and crews of these ships may be said to represent every rank in society, as well as nearly every nation and race of mankind. Thus, of European nations we have had, besides our own countrymen from every corner of the United Kingdom, French, Russians, Austrians, Germans, Danes, Dutchmen, Swedes and Norwegians, Spaniards, Portuguese, Italians, Swiss, Poles, Greeks, and Turks. Of Asiatics we had Circassians, Persians, Syrians, Turks, Hindoos, Mohammedans from India, Parsees, Jews, Cingalese, Malays, Chinese, and Manilla-

men. America sent us numbers from the United States, British subjects from Canada, and West Indians of many shades of colour. Africa was represented by Egyptians, Turks, Arabs, a Copt or two, Negroes and Somaulis; while even Australia sent two children from the bush, as well as several prosperous settlers from that interesting portion of the British Empire. However, the number of foreigners was on the whole so small when compared to the English, that no results could be arrived at as to their liability to illness or the reverse during their stay with us. For the short period I was in India I found that the African firemen were much affected by the damp cold of the China seas in winter, many of them being attacked with rheumatism at that season. The Egyptians in many instances bore unmistakeable traces of having had ophthalmia, many of them having wholly or partially lost the use of an eye; and as will be seen in the Table, a few cases of ophthalmia occurred on board, in every such instance after a sojourn in Egypt.

The summary, in a tabular form, on the opposite page, shows the total number of cases of illness which occurred in each month, the relative proportion of sick amongst the crews and passengers of the vessels, the prevalent diseases and the average number of persons on board during the respective months, the mortality, the mean temperature observed since 1848, inclusive, on the Alexandrian line, the number of days over which the observations extend, &c.

I must here remark, that the statement of the temperature for the years 1848, 1849, and 1850, is only the mean of the noon observations, whereas that for 1851 gives the mean of observations made every four hours, day and night, on the several passages between England and Alexandria. I added them together, and took the mean of the aggregate, as I found hardly one degree difference in the mean of 1851 and that of the three preceding years, though observed only at noon; thereby showing a remarkable uniformity of temperature, partly to be accounted for by the little variation between the temperature of

Number of Years observed.	Months.	Number of Days at Sea or in Foreign Port.	Average Number of Persons on Board, exclusive of Deck Passengers.	Average Number of Passengers.	Average Number of Crew.	Total Cases of Disease.	Passengers Sick.	Crew Sick.	I. Influenza, Catarrh, Fevers, and Eruptive Fevers.	II. Pneumonia, Bronchitis, Pleuritis, Cynanche Tonsillitis, Phthisis, and Pertussis.	III. Dyspepsia, Constipation, Colic, Gastritis, Diarrhœa, Dysentery, and Cholera.	IV. Hepatitis, Abscess, Hemorrhage, Piles, Plethora, and Diseases of the Heart.	V. Apoplexy, Paralysis, Delirium Tremens and Hydrocephalus.	VI. Gout, Rheumatism, Sciatica, Neuralgia, and Lumbago.	VII. Syphilis, and Diseases of the Generative System of both Sexes.	VIII. Hernia, Accidents, and Ophthalmia.	IX. Other Diseases.	X. Parturition.	Deaths.	Mean Noon Temperature between England and Egypt, since 1848, inclusive.	Mean daily Reading of Barometer, observed every four Hours, Night and Day, during 1851. England to Egypt.
5	January,	68	181	93	88	43	21	22	6	9	8	4	. .	4	6	4	2	1	. .	Fahr.	
4	February,	90	163	77	86	41	20	21	9	3	7	4	. .	4	5	6	3	. .	1	56°	29.92
5	March, .	78	181	90	91	41	32	9	13	5	5	5	. .	6	2	2	3	. .	. .	56	29.84
4	April, .	85	207	116	91	67	45	22	16	7	19	5	4	6	1	7	2	. .	1	59	29.85
4	May, .	103	121	43	78	37	26	11	8	9	9	1	1	1	3	3	3	. .	. .	61	29.76
5	June, .	101	125	50	75	47	29	18	3	6	9	9	. .	3	3	5	9	. .	. .	66	29.95
5	July, .	94	166	77	89	60	38	22	10	3	22	3	3	3	4	3	10	. .	. .	73	30.03
5	August,	74	176	86	90	100	49	51	8	2	70	1	3	2	5	4	5	. .	3	76	29.92
6	September,	125	167	81	86	68	45	23	3	7	34	9	2	2	2	4	5	1	. .	77	30.06
6	October,	122	178	81	87	60	31	29	5	3	17	5	1	2	2	2	13	. .	1	72	30.00
6	November,	121	191	104	87	82	53	29	8	13	27	11	. .	3	8	2	10	. .	1	68	29.80
6	December,	104	162	90	76	67	40	27	12	6	20	2	2	1	8	8	8	. .	. .	65	29.98
Total, .	. . . .	1165	. .	. .	. .	713	429	284	101	73	247	59	16	37	49	50	73	2	9	59	29.93
Average,	. . . .	19	168	83	86	11	7	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	
																				65.8	

night and day during a great part of the year in many places, particularly Alexandria and other parts of the Mediterranean much influenced by the sea air. The same remark applies to parts of the Atlantic.

Thus, during a considerable portion of the year, the temperature of the twenty-four hours varies only from one to three degrees in the shade at Alexandria. However, at the changes of season, or perhaps, more correctly, with a change of wind, I have observed a very great alteration in the thermometer. On May 4, 1851, a hot wind[a] blew off shore from south-east, loaded with sand and flies. The thermometer stood at 93° Fahr. at 6, P.M. on the 5th; about 4, A.M. the wind changed to north-west, and the thermometer fell to 63°, and for several days after the mean temperature was about 66°. In Malta, during the winter and spring months, the variations of temperature are often remarkably great, being very high in the sun, and low if exposed to the severe north-easterly wind, which often blows during these periods of the year. In concluding these introductory remarks, I shall merely observe, that the most trying part of the twenty-four hours in the Mediterranean is immediately after sunset; the dew falls then in an almost incredible quantity, and fevers and colds are too often taken by persons neglecting any precaution against the effects of the damp.

The Table gives the mean number of days at sea or in foreign port, on which observations were noted for each month, as 19, which is accounted for by the vessels starting on the 20th of the month on all the Alexandria voyages, and generally occupying three weeks of the next month also on the voyage. Twenty-seven such voyages are included in the Table; six voyages between Southampton and Constantinople, on three of which the vessels continued their course as far as Trebizond and back to Constantinople, making four trips between these

[a] The Khameen, so called from generally continuing fifty days.

ports before returning to England each time. In 1845 two voyages between Ceylon and Hong Kong are included in the Table: it is thus that the average number of days amounts to 19 in each month. The total number of days amounts to 1165, equal to three years and seventy days; during that period 11000 persons, passengers and crews included, travelled by the several ships to which I belonged, and each person was on board for a period of from three days and a half to twenty-eight days. I do not include in this number some thousands of deck passengers who were conveyed by the steamers on the lines between Smyrna, Constantinople, and Trebizond, and some hundreds who were conveyed between Malta and Alexandria.

The mileage performed during the above time, deducting stoppages in foreign ports, exceeded 220,000 nautical miles, and not one life was lost from accident of any kind during that time.

The mortality during the whole period amounted to but 9; a small per-centage, considering that so many of the passengers were invalids, returning, in many cases, with impaired constitutions, the result of a long residence in tropical climates. Of our own crews two died: one of cholera, during a severe epidemic of that disease in Malta in 1850; and the other suddenly of hematemesis while in Alexandria.

This is a small mortality for an average crew of 86 persons, exposed to considerable vicissitudes of climate and the risks of a sea life. We must recollect, however, that the men are selected as healthy and strong; and we have been obliged occasionally to place men in hospital; thus one man was left in Ceylon for dysentery, and died some time after of hepatic abscess. I am not aware of any other fatal case except one, which occurred a fortnight after our arrival in England at the time the cholera was so fatal in Southampton.

Two of the fatal cases amongst the passengers were children of about twelve months old, who died from hydrocephalus returning from India. A third fatal case was a gentleman many

years resident in India and Hong Kong, who died of dysentery of many months' standing, and who was sent to sea as a last resource. Another was a case of paralysis and broken-down constitution, from intemperance and the effects of long residence in tropical climates. A fifth was from long-standing disease of the liver in an old resident in Egypt. The sixth case was that of a gentleman who died of apoplexy, induced partly by over thirty years' residence in India, and partly by hereditary predisposition; while the seventh was a case of general break-up of the constitution, also in an old resident from India.

I have not included in the foregoing one man, a Greek, who had taken a deck passage from Trebizond to Constantinople, and was missed during the passage; many supposed that he had thrown himself overboard, as he had asked a friend of his to take charge of some money, which he requested might be given to his mother, whom he said he thought he should not see again; there were several hundred deck passengers on board at the time, but no one saw him committing suicide.

I shall now proceed to describe the diseases met with amongst the upper and middle classes of society, who were passengers to and from India and the East.

1845.—During September and October, on the line between Ceylon and China by Penang and Singapore, with an average number of not more than 16 passengers first class, I had care of one case of dysentery of long standing, which, as before stated, proved fatal; one case of paralysis, also fatal; one case of asthma in an old naval officer, who died of that disease six years afterwards in the West Indies; and one case of intermittent fever in a boy, seven years old, of English parents, he was a native of Penang, and suffered a monthly attack of the disease. A gentleman who had fever in Calcutta, and left it for the benefit of sea air, suffered much with boils on his voyage to China, where he got better, and remained in tolerably good health for six years, when he got dysentery, and had to leave

for England, where, however, he soon recovered. Besides the foregoing cases, I had some of bilious diarrhœa, which, however, did not continue long severe, yielding to astringents and mild aperients. During September and October, on the passage from China, by Singapore and Penang, to Ceylon, and back to China, the mean noon temperature was 85° Fahr., and the mean barometer, 29·95.

1846. May and June.—No sickness worthy of recording occurred on a voyage from England to Constantinople and Trebizond and back, amongst an average number of 30 passengers, not including several hundred deck passengers conveyed between Constantinople and Trebizond, nor 65 military invalids from Malta to England, of whose cases I have preserved no notes.

The mean noon-day temperature for May was 68°, and the mean noon height of barometer 30·02, from Southampton to Trebizond and back as far as Constantinople; and for June, on the line from Trebizond back to England, the thermometer was 74°, and the barometer 29·85. The latter half of April and the months of May and June are by far the best periods of the year for travellers in this part of the East, being the healthiest and of the most agreeable temperature.

1847.—In February, on the voyage from England to Alexandria, the only cases which occurred were, 1 of syphilis, and 1 of congestion of the liver in an old resident of the West Indies, addicted to intemperance. On the return voyage from Alexandria, in March, I had a severe case of rheumatism from China; 1 of hepatic congestion from India; and also, from the same country, a bad case of ulcers of the leg, and some minor cases.

On a voyage to Alexandria, leaving England on the 20th July, a lady, who had long resided in India, where she latterly had bad health, suffered greatly from sea-sickness and exhaustion: she was for some time insensible, and had several fainting fits, but improved in health before reaching Alexandria.

1 case of diarrhœa, not severe, occurred; and, returning from Alexandria, a case of sunstroke[a]. A young gentleman, aged 26, returning from Arracan, where he had severe fever, had a recurrence of it, of an intermittent type, while on board. A case of dysentery in a lady, also returning from India. A gentleman, who had resided thirty-six years in India, had sciatica while on board;—I heard since that this gentleman died about two years afterwards in Scotland.

On a passage from England, September 20th, to Alexandria, several (18) cases of constipation occurred amongst our passengers. These are very common cases during the first few days of a sea life,—owing, doubtless, to the change of habits and food. 1 case of colic, 1 of diarrhœa, 1 of asthma, and 1 of rheumatism, occurred on the homeward passage in October.

November 20 to the end of December.—On the voyage to and from Egypt there occurred amongst the passengers,—1 case of lumbago, 2 of dyspepsia, 1 of debility, and 1 of pleurisy in an elderly man who, after serving twenty-one years in the army, had served some three years in the capacity of fireman in a steamer in India!

1848. 20th January to 26th February; voyage to and from Alexandria.—I had charge of one gentleman far advanced in phthisis, going to try the climate of Malta; he was, however, too far gone to be benefited by any change, and shortly after returned to England and died; 3 cases of catarrh and bronchitis; 2 of debility and indigestion. Many cases which I have put under the head of debility are persons who, much weakened by previous illness, or afflicted with great irritability of stomach, suffer greatly from sea-sickness. The principal difficulty I experience in such cases is from the great disinclination of persons so affected to take nourishment. I find, if a person affected with sea-sickness remains in the open air, and takes a small quantity of food,—arrow-root, yolk of egg beaten up, biscuit or rusk and a little cold water,—they generally

[a] Published in the twelfth volume of this Journal, p. 235, 1851.

overcome the sickness, after repeated efforts to retain some such light diet. If they cannot subdue the distressing symptoms of sea-sickness by these means, I usually find that they derive much benefit from draughts of citrate of ammonia taken in a state of effervescence, and combined with hydrocyanic acid, or solution of morphia, or tincture of henbane, according to circumstances. I have tried creasote in different forms of combination, but cannot recommend it. When irritation of the stomach runs into inflammation, I have often had to resort to leeching and vesication. The state of the bowels should be early looked to in these cases. I have read of fatal cases of sea-sickness as having occasionally occurred; but though I have seen some thousands of persons sea-sick, I have never witnessed a single fatal case. Besides the above, 4 cases of diarrhœa, 1 of rheumatism with chronic disease of the heart, and 1 of bruise, occurred amongst our passengers.

Before dismissing the subject of sea-sickness, I think I may here allude to some of the means advised as prophylactic in this serious drawback to sea-travelling. Amongst other means proposed, the following have recently been recommended:—Inspiring and expiring with the rising and falling of the part of the vessel you are in;—endeavouring to hold a tumbler nearly full of water at arm's length, without spilling any of it. I have seen persons occasionally try these means; and though for a time they are amused and the sea-sickness postponed, they generally soon tire, and undergo the penalty of the majority of novices on board ship.

I have just used the word 'novice,' and I think it explains how the majority of sailors overcome the tendency to sea-sickness, namely, by becoming accustomed to the motion of the ship, and so learning to counteract the upsetting effect produced upon the stomach by the unsteadiness of the vessel. Many persons have never been sea-sick in their lives: others, as in the case of Lord Nelson, have never been able to overcome the tendency to it during long service afloat;—nay, I

have known officers become very sea-sick when transferred from their own ship to one in which they have not before sailed. Much, too, depends on the state of health the individual enjoys at the time of going to sea.

I would recommend each person, on first going to sea, to keep on deck as long as possible, never to allow the stomach to remain empty, to occupy the mind with conversation or light reading, and to keep near the centre of the ship or where there is least motion.

20th March to 29th April; England to Egypt and back.—2 cases of rheumatism,—one of them followed by abscess in the areolar tissue beneath the pectoral muscles on the left side,—and 6 cases of diarrhœa, dysentery, enteritis, and dyspepsia, occurred. One gentleman, who had long suffered from dysentery in India, was so extremely reduced that he died the fourth day after landing at Southampton. Besides the foregoing, there was 1 case of debility, and 1 of whitlow, also, amongst the passengers.

20th May to 26th June.—1 case of continued fever; 1 of catarrh; 2 of quinsy; 1 of empyema; 2 of hooping-cough; 1 of dentition; 3 of dyspepsia; 1 of diarrhœa; 2 of colic; 1 of gastro-enteritis; 1 of gout; 1 of hepatitis and jaundice; 1 of boils; 1 of a bruise; and 2 cases of ophthalmia, occurred.

20th July to 26th August.—In the Indus, an iron ship, the previous five voyages having been in the Hindostan, built of wood.—5 cases of catarrh and fever; 1 of bronchitis; 10 of indigestion, diarrhœa, and dysentery; and 1 case of incised wound of the abdomen, followed by peritonitis and recovery.

20th September to 30th October; England to Egypt and back.—There were among the passengers, 6 cases of diarrhœa and dysentery; 5 of indigestion and constipation; 2 of debility; 1 of disease of the heart; and two accidents.

20th November to 23rd December.—Cases of passengers of the Indus: catarrh or slight fever, 3; diarrhœa and dysentery, 5; aphthæ, 1; constipation, 1; indigestion, 1; hernia, 1; ple-

thora, 1; hemicrania, 1; toothache, 1; ophthalmia, 1; bronchitis, 1; hysteria, 2.

1849. 20th January to 27th February.—Cases of passengers of the Indus: constipation, 3; hepatitis, 1,—this case was combined with phthisis, and the patient died thirty-six hours after leaving Egypt, where he had long been ill; chronic hepatitis, 2. Under this head I have placed the case of a gentleman who had long served in the army in India; while on board he had two attacks of "hepatalgia" combined with asthma; the symptoms were, excruciating pain referred to the liver, with absence of febrile symptoms, his pulse ranging from 70 to 72. The disease is well described in the Cyclopædia of Practical Medicine by Dr. Stokes, who there quotes Andral, by whom it was termed hepatalgia or hepatic colic.

I have seen five other cases of what M. Andral has called hepatalgia: one was in a hysterical young lady returning from India; another was in a stewardess, whose robust figure at first led me to expect an inflammatory disease; the other three cases occurred in gentlemen returning to England after long service in the East.

Moderate doses of blue pill and aperients combined with a little soda or potash, followed by tonics, were of use in these cases; and during the attack some relief was afforded by chloroform in a small quantity in one case, and hyoscyamus and ether in others.

Besides the above-mentioned cases: 2 of catarrh; 1 of neuralgia; 3 of accidents; 1 of ulcer; one case of tinea capitis; 1 of debility, and 1 of amenorrhœa, occurred amongst our passengers.

20th March to 23rd April; England to Egypt and back.—The cases were: 1 of catarrh; 1 of asthma; 1 of quinsy; 2 of bronchitis; 1 of pleurisy; 2 of diarrhœa; 3 of dysentery; 1 of paralysis; 2 of rheumatism; 1 of ophthalmia; 1 of psoriasis; 1 of fracture.

1st of May to 6th of June.—On a voyage from Eng-

land to Constantinople and Smyrna, and back to England, with an average of 30 passengers: we had one case of bronchitis; 2 of phthisis. Leaving England for Malta and India: 1 of constipation; 1 of indigestion; 1 of toothache.

20th June to 29th July; England to Egypt and back.—The following cases occurred amongst our passengers: 2 of fever; 1 of aphthæ; 1 of indigestion; 2 of diarrhœa; 1 of stricture; 1 of hydrocephalus, an infant who died the day after it had embarked at Alexandria *en route* from India; 1 of debility and syphilis; 1 of rheumatism.

20th August to 30th of September; England to Egypt and back.—Several passengers were ill: 5 of dyspepsia; 1 of gastritis; 2 of diarrhœa; 2 of cholera; 1 of quinsy; 1 of hydrocephalus, an infant, it also died of this disease *en route* from India; 1 of ophthalmia, an Arab.

20th October to 26th November; England to Egypt and back.—Passengers sick: 3 of catarrh; 1 of hepatitis; 1 of hepatalgia; 2 of indigestion; 1 of diarrhœa; 1 of tabes mesenterica; 1 of rheumatism; 1 of cachexia; 1 of abscess; 1 of hysteria; 1 of orchitis.

29th November to 6th January, 1850; England to Constantinople and back, in the Sultan.—Average number of passengers, 30; 1 case of phthisis occurred, an advanced stage of disease in a lady; she died soon after in India. I may here remark, that a tropical climate, in confirmed phthisis, seems to accelerate a fatal termination. There was also one case of diarrhœa.

1850. 29th January to 9th March.—Average number of passengers, 25; amongst whom the following cases occurred: strumous abscess, 1; and gonorrhœa, 1. The case of struma was that of a young married lady, who had been recommended to leave England for the south of Europe, where she has since remained, and improved in health.

20th March to 23rd April; England to Egypt and back.—Average number of passengers out and home, 124; passengers

ill: fever and catarrh, 4; measles, 5; bronchitis, 2; dyspepsia, 2; gastritis, 1; hemoptysis, 1; hepatalgia, 1; rheumatism, 1; apoplexy, 1,—this case was that of a physician, who had resided thirty years in India, and had been ordered home on account of giddiness and double vision; on the morning of 10th April he was found insensible in his cabin, and died half-an-hour afterwards; he was fifty-four years old;—paralysis, 2, both cases of old residents in India; diarrhœa, 2,—one of these was a gentleman completely broken down in health, but he would go to China, where he soon after died; he had lived hard all his days, and spent many years at sea in all climates;—sarcocele, 1; tumour, 1; sprain, 1; bruise, 2. The five cases of measles occurred on the homeward passage. We had 28 children on board at the time, almost every one of whom had the disease after reaching England.

20th June to 24th July.—Cases of passengers of the Ripon, to and from Egypt: catarrh, 2; fever, 1; intermittent fever, 1; quinsy, 1; broken constitution, disease of liver and heart, asthma, &c., 1,—this patient suffered intense pain and dyspnœa at times, had long resided in India, whence he was now hoping to return to England, but died as the Ripon entered the Southampton water; he was sixty-six years of age;—dyspepsia, 1; diarrhœa, 1; dysentery, 1; gout, 1; torticollis, 1; otalgia, 1; hysteritis, 1; bruise, 1. The case of pain in the ear just mentioned arose from hardened secretion, which was easily removed by syringing. Some time before I met with a case which had been treated by another surgeon by leeching, &c., with temporary relief; four days after, the case came under my notice at Alexandria, when the gentleman was suffering intense agony. On gently syringing the ear for some time, an insect, apparently a small kind of beetle, was removed, covered with the cerumen. He supposed the insect had got into his ear while coming up the Red Sea. These are very common cases amongst the natives of hot climates, who often sleep out of doors.

20th August to 27th September.—Cases amongst passen-

gers on voyage to and from Egypt: Catarrh and fever, 2; quinsy, 1; dyspepsia, 3; debility, 5; diarrhœa, 9; hepatitis, 1; hemorrhoids, 1; and 3 minor cases.

20th October to 25th November; to Egypt and back.—2 cases of fever, of mild form; 4 of dyspepsia; 1 of constipation; 4 of diarrhœa; 2 of phthisis; 1 of bronchitis; 2 of chronic hepatitis; 3 of dentition and toothache; 1 of cachexia; 4 of debility; 4 of hemorrhoids; 1 of anthrax; 1 of gonorrhœa.

20th December to 20th January, 1851.—Cases amongst the passengers of the Ripon: catarrh, 2; intermittent fever, 1; diarrhœa, 1; chronic hepatitis, 1; debility, 3; neuralgia, 1. This patient, a delicate young lady of strumous diathesis, died about fourteen days after leaving us at Alexandria; she apparently sank exhausted. Delirium tremens, 1; fractured rib, 1; whitlow, 1; and other cases, 7.

1851. 20th February to 25th March; England to Egypt and back.—Cases of passengers: catarrh and slight fever, which on this occasion might be more properly named influenza from its symptoms, &c., 13. It attacked those going out in nearly the same proportion as those returning from the East; the whole of the cases, except one, occurred between Gibraltar and Malta, going out and returning. Quinsy, 2; diarrhœa, 2; tænia, 1; neuralgia, 2; scald, 1.

20th April to 25th May; to Egypt and back.—Cases of passengers: Hong Kong intermittent fever, 1; influenza, 4; influenza and bronchitis, 1; bronchitis, 1; constipation, 2; dyspepsia, 1; chronic hepatitis, 1; varicose ulcer, 1; debility, 1; epilepsy, 1; ophthalmia, 1; orchitis, 1; fever, 1. The case of Hong Kong fever was that of a soldier who had been some time quartered in the island, and was invalided on account of fever. Since leaving, that was, for about five weeks, he had two returns of the fever, each time at the full moon[a]. The principal symptoms he complained of were great pain in the

[a] See Dr. Barton's observations on this subject in the twelfth volume of this Journal, p. 343.

head and weakness; quina seemed to benefit him. I had another case of fever, which resembled that just mentioned in coming on also at the full of the moon. The patient had resided in India many years, being an officer in the Company's Service, and had got jungle fever. He was in very low spirits, having lost his wife lately; and a gentleman who had treated him before he came on board feared he should have had delirium tremens. When I saw him on 14th of May his pulse was 112, small; tongue loaded with a brownish-white clammy coating; he felt oppressed; with no particular pain; had anorexia; no symptoms of delirium tremens at present, but a sensation of heaviness in the head, and slight confusion of ideas, in some degree possibly attributable to the pitching of the ship against a head-sea; he was sick, and vomited several times. I gave him some blue-pill and James' powder at night, and a warm aperient next morning. He also had draughts of citrate of ammonia in effervescence four times a day; he now improved steadily, taking an opiate occasionally before the night. On 17th May his pulse was 120, but fuller and stronger; after a warm bath his pulse fell to 94. In a few days he was perfectly well, and continued getting stronger till he left the Ripon at Southampton.

20th June to 19th July.—Cases amongst passengers to Egypt and back: dyspepsia, 1; diarrhœa, 3; dysentery, 1; hepatitis, 1; fistula in perineo, 1; orchitis and other cases, 4; debility, 4; ophthalmia, 1.

20th August to 20th September.—Cases of passengers on a voyage from England to Egypt and back in the Pottinger, with 86 passengers: intermittent fever, 1; phthisis, 4,—invalids from the army and navy at Malta; dyspepsia, 1; constipation, 1; diarrhœa, 10; rheumatism, 2; epilepsy, 1; debility, 1; orchitis, 1.

20th October to 23rd November.—Cases of passengers in the Pottinger, to and from Egypt: fever, 1; quinsy, 1; bronchitis, 1; pneumonia, 1; dyspepsia, 1; diarrhœa, 1; dysentery, 1; chro-

nic hepatitis, 2; abscess, 1; debility, 2; orchitis, 1; gout, 1; dentition, 1; hysteritis, 1; and menorrhagia, 1.

20th December to 19th January, 1852.—Cases of passengers on voyage to Egypt and back, in the Ripon: catarrh and fever, 2; quinsy, 1; phthisis, 1; constipation, 2; diarrhœa, 3; dysentery, 1; chronic hepatitis, 2; rheumatism, 1; ulcer, 1; debility and sea sickness, 3.

I have not included in the foregoing a few cases of insanity which came under my care, and which were returning home from the Mediterranean and India. Two only required constant watching; they were military invalids from Malta, and non-commissioned officers had charge of them.

I shall next speak of the diseases I observed amongst the crews of the several ships of which I had charge on the lines to Egypt, Turkey, and China.

1845. In September and October, between Ceylon and China, one severe case of hemorrhoids, an officer of the ship, came under my care; one seaman had remittent fever; one African fireman had syphilis; one had ophthalmia; and a third, an incised wound of the nose. Amongst the European sailors there were three cases of dysentery; one accident (a contusion); and one case of rheumatism and secondary symptoms; and in an officer of the ship I removed a fibrous tumour from the first phalanx of the great toe.

The dysentery occurred while we were at anchor in Hong Kong Bay, and its spreading through the ship was prevented by getting the three sick men removed to hospital, and cleaning and ventilating the seamen's quarters.

On the voyage from Hong Kong to Ceylon and back, during September and October, there came under my notice: dysentery, 4 cases; intermittent fever, 1; remittent fever, 1; paralysis, 1; hemorrhoids, 1; mild ophthalmia, 1; rheumatism, 2; asthma, 1; debility and boils after fever, 1. I have not included in the above some cases of diarrhœa, which readily yielded to treatment.

1846. May and June, on a voyage from England to Constantinople, and Trebizond and back, I had, amongst a crew of about 65 men: 1 case of rheumatism; 1 of syphilis; 1 of constipation; 1 of fractured rib; 1 of inflamed bursa of the knee; and 1 of inflamed bursa of the elbow-joint, from bruises.

During the greater portion of the year the coasts of Asia Minor and Turkey in Europe are very healthy; but in the latter part of summer, and in the autumn months, ague and various forms of fever are prevalent. At this period, Therapia, a village on the Bosphorus, facing the entrance to the Black Sea, is much resorted to as a retreat from Constantinople, during the hot and comparatively unhealthy season just alluded to. Therapia is pleasantly situated, surrounded by magnificent scenery, and constantly cooled by a northerly wind.

From 20th to 23rd October.—During a severe storm in the English Channel, of a crew of some ninety men, one officer, recently returned from India, had a severe attack of quinsy, another had a rib broken, and two seamen sustained contusions.

During November no cases worth mentioning occurred on a voyage from England to Trebizond, with an average of over sixty first-class passengers, besides many hundred on deck, the latter for three days only at a time on board; and with a crew of about sixty-five men.

In December of the same year, on the return voyage from Trebizond to England with the same crew, nothing worthy of note occurred.

1847. February 20th to March 31st.—On the voyage to and from Alexandria: 1 case of chronic hepatitis; 1 of quinsy; 1 of bronchitis; and 1 of syphilis, occurred amongst the crew.

20th July to 28th August; Voyage from England to Egypt.—A sailor had an attack of colic; a fireman, inflammation of the liver; 3 of the apprentices had influenza; 2 officers of the ship were attacked with dysentery during very hot weather while lying at Alexandria; and from the 8th to the 14th of August, 5 other cases of dysentery occurred amongst the ship's

crew. We left Alexandria on the 11th, after which there were only 2 cases of dysentery on board; however, I have never had so many cases of dysentery while lying at Alexandria as on this occasion. On the passage to Malta we had 3 cases of spasmodic colic.

20th September to 29th October: Voyage from Southampton to Egypt and back.—The following cases occurred amongst the officers and crew of the Hindostan: orchitis, 1; abscess, 2; inflammation and erysipelas, 2; accidents, 3; hepatitis, 1; dysentery, 2; ophthalmia, 1.

20th November and the month of December; England to Egypt and back.—Several of our crew suffered from colic in a mild way; in 2 cases the affection of the bowels assumed an inflammatory form, and required depletion and mercury; 3 cases of constipation and indigestion; 5 of influenza; 1 of bronchitis; 1 of quinsy; 1 of orchitis; 1 of syphilitic iritis; 2 of slight accidents.

1848. 20th January to 26th February.—Amongst the crew I had 1 case of abscess; 1 of pleurisy; 1 of plethora, and apparently functional disease of the heart; 1 case of sub-acute gastritis; 2 of syphilis; and 1 of catarrh.

20th March to 29th April.—The following cases occurred amongst our crew during the voyage: 1 case of acute hepatitis; 1 of fracture through the elbow, followed by recovery, and considerable power of flexion and extension; 4 of catarrh and slight fever; 1 of chronic hepatitis; 3 of rheumatism and neuralgia; 1 of erysipelas; and 1 of epilepsy.

20th May to 26th June.—Cases amongst the crew of the Hindostan, between England and Egypt and back: 1 officer suffered from acute hepatitis,—he was about 22 years of age, and soon after went to India; he died in 1850, on his return from India, of, as I was told, disease of the lungs;—1 of dysentery; 1 of wound; 1 of ulcer; 1 of cystitis; 1 of rheumatism; 1 of gouty iritis,—an old naval officer, whose fingers were knobby with chalk stones;—1 of orchitis; 1 of catarrh.

20th July to 26th August.—Amongst the crew of the Indus:—1 of bronchitis; 1 of apoplexy, apparently induced by excessive heat of engine-room (the case has been published in this Journal[a]);—1 of slight fever; 1 of hernia, reduced by taxis and chloroform, after the ordinary means had failed; 2 cases of dysuria,—arising, apparently, from paralysis of the muscular coat of the bladder, induced by cold and damp when in a state of copious diaphoresis;—1 of abscess.

We enjoyed a comparative immunity from illness on this voyage homewards, as well as when lying for three days at Alexandria, where the cholera was raging, the deaths being from 260 to 300 daily for several days, amongst a population of about 70,000, instead of the average mortality at the same season of the year of about 10 per day. As is shown above, our crew did not suffer from any disease of the alimentary canal; and although our passengers had crossed from Suez to Alexandria by Cairo, only 7 cases of diarrhœa and dysentery occurred amongst them on the voyage home, nor were any of these cases severe. We may in some measure ascribe this to the care taken, both by the Egyptian Government and the officers of the Peninsular and Oriental Company, to prevent, as much as possible, the passengers coming into contact with the population: thus, they did not pass through Cairo, as is usual, but skirted that city on their way to embark on the Nile; they also avoided passing through Alexandria.

I may here observe that, as a general rule, the crews of our ships are not allowed to land in foreign ports. On this occasion we departed a little from this regulation, a party of seamen being landed to carry the young gentleman who received the sabre-wound in the abdomen[b] to the Hotel d'Europe, where he remained under the care of A. Farquhar, Esq., of that city, until sufficiently recovered to proceed to India. Our men did not suffer from their short stay on shore.

Part of the crew of a small steamer, that had recently ar-

[a] New Series, vol. xii. p. 237. [b] See page 308.

rived out from England, returned with us in the Indus. Five of their comrades I objected to being received on board, as they had diarrhœa, and two of them suffered also from severe cramps. They all recovered, and returned from Alexandria by a subsequent steamer. I cannot pass over this without mentioning, that the gentleman (Captain Joy, of the Peninsular and Oriental Company) under whose command these men had come out from England, would not leave any of his men ill behind, but remained with them, looking to their wants, and cheering them with his presence and his abundant good spirits,—running a very considerable risk in staying at Alexandria, where pestilence daily carried off its hundreds, and the majority of the inhabitants locked themselves into their houses, in dread of contagion from their fellow-men.

I do not wish to enter here into the question of Quarantine, but will merely remark, that the two men above alluded to had got on board the ship before I was aware of their symptoms, and, fearing the consequences of taking them on to England, I felt bound to have them conveyed on shore again; yet no cholera appeared amongst us, nor were any of the twelve men, whose comrades we had left behind suffering from choleric symptoms, affected even with diarrhœa. My experience of cholera is, that the contagion must be very concentrated indeed to affect persons not predisposed to it by other causes, as bad food, debility, or exhaustion, bad atmosphere from foul exhalations, damp, &c.

20th September to 30th October.—On this voyage the following cases occurred amongst our crew: 2 of diarrhœa; 1 of dysentery; 2 of catarrh; 1 of ulcer; and 2 of contusions.

20th November to 23rd December.—Crew: 1 of quinsy; 2 of pleurisy; 2 of diarrhœa; 1 of apoplexy; 2 of accidents.

1849. 20th January to 27th February.—Cases amongst the crew: 3 of pneumonia and bronchitis; 1 of psoas abscess; 1 of inflamed bursa; 2 of accidents; 1 of indigestion; 1 of neuralgia.

20th March to 23rd April.—Cases amongst the crew: 1 of fever (typhoid); 1 of bronchitis; 2 of colic; 1 of functional affection of the heart.

May to June 6.—England to Constantinople and back: 2 cases of bronchitis, and 2 of diarrhœa, occurred amongst our crew.

20th June to 29th July; England to Egypt and back.—Of the crew sick, we had: 2 of fever; 1 of quinsy; 2 of colic; 1 of constipation; 1 of diarrhœa; 1 of hemorrhoids; 1 of apoplexy; 1 of orchitis.

When we left England in June, cholera had appeared in some parts of the country, but not in Southampton. We remained at Alexandria from the 5th July until the 14th, during which period very little sickness occurred on board the Ripon, and Alexandria was healthy. We were not allowed to communicate with Gibraltar on our outward voyage, as cholera existed in England. We are never allowed to land at Malta or Gibraltar on the voyage home from Egypt, lest we might convey plague,—which has not, so far as I can learn, been known in Egypt for more than nine years. The period of quarantine at Malta is now only three days; but at Gibraltar, owing to the regulations of the Spanish rulers, our Government cannot allow any lazaretto to exist, and unless persons hire a ship they cannot perform quarantine there returning from Egypt. For several years the Spanish Government employed officers to travel between Spain and Manilla, in charge of the mails and despatches, and these gentlemen were always obliged to pass Gibraltar, proceed to England, and there re-embark for Cadiz, in consequence of their quarantine laws! The President of the French Republic has altogether done away with the quarantine establishment at Marseilles, and it would be well if his example were followed, to some extent at least, by Spain; and yet her own trade is affected much more than the comfort of travellers by her absurd quarantine laws.

20th August to 30th September.—The following cases oc-

curred amongst the crew: 1 of quinsy; 1 of pleurisy; 1 of bronchitis; 8 of diarrhœa; several cases not recorded in which the symptoms were not severe; 2 of cholera; 1 of delirium tremens; 1 of fracture.

20th October to 26th November.—Cases amongst crew of the Ripon: 1 of fever; 1 of quinsy; 1 of pleurisy; 1 of pleurodynia; 1 of indigestion; 3 of diarrhœa; 1 of fracture.

29th November to 6th January, 1850.—Sickness of crew: catarrh, 1; pleurisy, 1; pleurodynia, 1; diarrhœa, 3; bruise, 1.

1850. 29th January to 9th March.—Crew sick: 1 of fever; 1 of quinsy; 1 of hemoptysis; 1 of syphilis.

20th March to 23rd April, 1850.—Sick of crew of the Indus: 1 of debility; 1 of dyspepsia; 1 of diarrhœa; 2 of accidents.

20th June to 24th July.—Cases amongst crew of Ripon: 3 of diarrhœa; 1 of cholera. This man died of congestion of the brain five days after he was attacked with cholera; he had diarrhœa for some days before he applied for advice. Cholera was very severe at Malta at the same time; and this case occurred after leaving that port. We had not communicated there, that is, according to quarantine parlance, we were in port and received fresh provisions, but no one from the shore came on board, nor did any of our party go on shore except at the quarantine station. Papers, and all things supposed to be susceptible as fomites, were fumigated before we received them, lest we should take cholera; while everything we sent on shore was fumigated lest we should have conveyed plague from Egypt! We also had some slight cases of diarrhœa which I did not record; one of those entered above as diarrhœa was very severe, attended with cramps, and followed by great debility. One case of sunstroke occurred on the homeward passage; it has been published in this Journal[a].

20th August to 27th September.—Sickness of crew: dyspepsia, 2; diarrhœa, 13; fistula in ano, 1; sprain, 1; bruise and hemorrhage, 1. This case, which I have named "bruise and

[a] New Series, vol. xii. p. 236.

hemorrhage," occurred thus:—A young man, aged 18, leaped from the jib-boom into the water, while the Ripon was lying in Malta quarantine harbour, a height of about thirty feet; he fell apparently flat on his back, was much stunned by the shock, and was immediately carried by his comrades, several of whom were also bathing, on board; he spat up blood, apparently from the lungs, and bled freely from the nose for a few minutes. On examining his back I found an extensive bruise, with the skin chafed off in some places; and in a few hours several large blisters had risen. The surface healed in a few days, and no bad effects followed.

During August and September cholera continued at Malta; to that circumstance, and the season being hot and oppressive, I attributed the number of cases of diarrhœa and general debility which occurred during the voyage. Some trivial cases of diarrhœa were not noted; as before, we did not communicate, or rather had not *pratique* at Malta, out or home.

20th October to 25th November.—Cases of crew: fever, 1; hemoptysis, 1,—a fatal case:—a pale, sickly man, a sailor, had for some months complained of short cough, but had continued on duty until two days before he died; after supper on the 5th November he was seized with spitting of blood, apparently from the lungs, and was dead in a few minutes; no *post mortem* examination was obtained. Diarrhœa, 4 cases; hemorrhoids, 1; hepatitis, 1; rheumatism, 1; ulcer, 1; hydrocele, 1.

20th December, 1850, to 20th January, 1851.—Cases of crew of the Ripon: catarrh, 1; quinsy, 1; fractured rib, 1; fractured rib and pleurisy, 1; indigestion, 3; colic, 1; gout, 1,—a steward, long used to high living, with little exercise.

1851. 20th February to 25th March.—Cases of crew of the Ripon: severe headach, 1; influenza, 2; epistaxis, 1; rheumatism, 2; whitlow, 1.

During this voyage we had prevailing easterly and north-easterly winds while the influenza continued, and very cold

weather at Malta and in the Mediterranean generally. The thermometer on 3rd March, the morning before we reached Malta, was only 49°, and the mean temperature for each twenty-four hours from the 2nd to 6th March, inclusive, was only 52°, 50°, 51°, 52°, and 56° respectively.

20th April to 25th May.—Sickness of crew on voyage to Egypt and back in the Ripon: influenza, 2. One of these cases presented the following symptoms:—J. G., aged 31, a robust seaman, fainted while at the wheel (steering) at 3, 35 o'clock, A.M., on 21st April, the Ripon being about 50 miles S.S.W. of Start Point; the weather foggy, with rain. When I saw him, a few minutes after, his pulse was 54; he felt weak and very cold; I gave him a little ammonia with compound tincture of cardamoms, and got him into his hammock. His pulse soon rose to 76; he stated that he never had any fit, but had once fainted when in cholera. At 8, A.M., his face was flushed; pulse 68; and he complained of stiffness and pain in all his limbs; I gave him solution of tartar emetic, but it did not produce vomiting; he had some arrow-root, and after a few hours' sleep felt better. At night he had some aperient medicine, and I repeated it next morning, but no action was produced on the bowels; however, he passed about four ounces of urine on the morning of the 22nd, not having voided any for more than twenty-four hours previously. The urine was very dark and thick; the glands of his neck were much enlarged, and his throat sore. He complained of oppression of the chest; he was therefore ordered to have a warm plaster applied, and was directed to use a sulphuric acid gargle. It was with much difficulty I got his bowels to act. On the 25th April he returned to duty well. I have constantly remarked that influenza, diarrhœa, and cholera, when epidemic on board ship, show themselves, for the most part, very early in the morning, generally attacking some of the morning watch. Quinsy, 2; constipation, 1; diarrhœa, 3; fistula in ano, 1.

20th June to 19th July.—Cases of crew, England to Egypt and back, in the Ganges: colic, 1; diarrhœa, 2; disease of heart, 1; whitlow, 2; sprain 1; bruises, 2.

20th August to 20th September.—England to Egypt and back, in the Pottinger: Cases of crew sick: constipation, 1; diarrhœa, 15; dysentery, 1; abscess, 1; sprain, 1. An epidemic of diarrhœa commenced on board on the 22nd August; at the time we left Southampton some cases of bowel complaint had occurred there, such as frequently happen in the autumn; as far as I could learn, one person only, a lady, suffered from it before coming on board. On the 21st we had foggy weather, with a westerly wind; the mean temperature, for twenty-four hours, up to noon, being 67½°, and the mean reading of the barometer, for the same time, being 30·47 inches. August 22, mean temperature, 73°. The barometer, which had risen to 31 inches, fell to-day to 30. Weather damp and foggy, wind, light airs from S.W. and W. At 2 this morning I was called to see the boatswain, a tall, powerful man, aged 46; he had great pain in the epigastrium, severe cramps, and constipation; he was placed in warm blankets, well rubbed with dry flannel, and ordered a draught of castor oil and tincture of opium. During the day he had ten stools, and in the evening I gave him a grain of opium, with aromatic confection, which was to be repeated after each liquid stool. The diarrhœa ceased after the first dose, and on the next day he resumed duty. On the 22nd, 9 other cases of diarrhœa occurred, 6 of them being seamen, 2 of whom had cramps and great pain; the remainder did not leave duty.

August 23.—Mean temperature 73°, mean barometer 30·03. Wind S.W. and variable; weather thick and misty, off the coast of Gallicia and Portugal. 3 other cases of diarrhœa occurred to-day: 1 of a passenger; 2 of the seamen affected yesterday continue ill; 1 of the new cases, a lad of 16, was taken with faintness and severe pain in the epigastrium; he had diffusible stimulants and astringents. In the afternoon a fresh

breeze sprung up from the north, a degree of haziness continuing in the atmosphere.

On 24th August, northerly breeze continued; mean thermometer being 70°, and barometer, 30·04. At 1, P. M., we passed Cape St. Vincent, steering a south-easterly course for Gibraltar. To-day several persons complained of pain and uneasiness in the bowels; and three passengers, two infants, one officer, and four of the crew, were attacked with diarrhœa; a fireman suffered from colic; a servant, from faintness and vomiting; a young gentleman, aged 21, from hemorrhage from piles; and another had a fit of epilepsy. Five cases of diarrhœa remained ill from the previous day.

25th August, arrived at Gibraltar, at 7½ o'clock, A. M. Temperature at noon, 93° in the shade; barometer, 29·94. No new cases of diarrhœa occurred to-day. One of the seamen who had diarrhœa passed much blood by stool and by vomiting; he was twenty-six years of age; I gave him gallic acid, after which he had no return of hemorrhage, and soon got quite well.

A steamer arrived at Gibraltar on the 24th, with some cases of diarrhœa on board. She had touched at Cadiz on her way from England and Lisbon; some of her crew were affected, and she reported that the disease was very prevalent at Cadiz when she was there. On reaching Malta I learned that cholera had been severe during August on the coasts of Barbary. From these circumstances, and the fact that those of our number on board the Pottinger who were most exposed to the weather were the persons who chiefly suffered, I attributed the epidemic to atmospheric causes; and, as I find it often remarked that cholera generally commences in India during foggy weather, I was happy the epidemic proved so slight. During the remainder of the voyage to Egypt, and thence back to England, only two cases of diarrhœa occurred, although the temperature was unusually high for the season.

20th October to 23rd November, 1851.—Cases of crew of the Pottinger, to Egypt and back: catarrh, 1; erysipelas, 1;

constipation, 1; disease of heart, 1; sunstroke, 1, in a seaman, aged 52; treatment,—stimulants, aperients, and venesection to ten ounces; recovery; hernia, 1; wound, 1; rheumatism, 1.

20th December to 19th January, 1852.—Cases of crew of the Ripon, to Egypt and back: catarrh and slight fever, 4; continued fever, 1; diarrhœa, 1; constipation, 1; plethora, 1; rheumatism, 2; ophthalmia, 1; contusion, 1.

This concludes, in as concise a form as possible, an account of the cases which I have witnessed while acting as surgeon on board the vessels of the Company; and I hope that the following additional remarks will not be thought out of place here. About two years since, the issue of spirits to the seamen and firemen of the Peninsular and Oriental Company's ships was stopped, and, in lieu of it, a small sum of money has since been paid monthly to each man. The crew join with that understanding, and there are always more men to be had than are required, and the greater number employed have been many years in the service. I consider the health of the men has been greatly benefited by the change; at the same time I do not attribute this to the actual withdrawal of spirits from the dietary of each individual, but to the prevention of a state of things produced by the old grog system; for some men, from choice or necessity, gave up their grog to their companions, who too often thereby had more than was good for them, became intoxicated or ill, threw their duty upon others, who, in their turn, became overworked and ill, and so increased our practice certainly, thus producing a state of things anything but satisfactory to those on whose responsibility the efficient working of the ship depended. I have the pleasure to say, that my experience, as to the effects of the change, is fully borne out by that of a gentleman who has been surgeon in one of the largest vessels of the Peninsular and Oriental Company, from the commencement of the line to Alexandria, eleven years since, to the present period; including, of course, the time of

the old grog system, and the present no-grog plan:—I may here mention that grog signifies one part rum, and three parts water. Each man had formerly two gills of rum a day.

I am quite aware that regulations have been in force on board men-of-war to prevent men from bartering their grog to others for "a consideration," whether that was by doing "a turn" of duty, or for any other matter; the most usual plan was to oblige the men to drink their grog in presence of the officer of the deck, at the time of serving out; but this was objectionable, as men generally prefer having their allowance on leaving duty, or when fatigued.

However, I have never found that the moderate use of fermented liquors impairs the energies of working men; on the contrary, I consider that the men whose duty it is to attend the fires of the steamers would be benefitted by a moderate use of spirits; but it seems impossible to limit that class of men to a given quantity, and so to avoid excess, which, as above described, they used always find means to obtain; it is no doubt better to withdraw grog altogether.

Formerly, when a steamer arrived in a foreign port, many of the men contrived to smuggle spirits on board, notwithstanding every precaution on the part of the officers of the ship; now such a thing is, I believe, hardly thought of; the men seem to lose much of their former thirst for stimulants, and in consequence we find them more orderly, contented, and industrious. I find the captains of the Peninsular and Oriental ships, and other officers with whom I have spoken on this subject, approve of the present system, mainly for the reasons given above. In her Majesty's ships of war the authorities allow half the former allowance of grog, and extras instead of the rest.

In Dr. Carpenter's Prize Essay on Alcoholic Liquors, it is stated, that the porters and boatmen of Constantinople are superior to the same classes in England, and that the former are water drinkers, while the latter drink ale and spirits. With this

statement I cannot agree; I have seen much of the Constantinopolitans, and think the classes referred to fine men, but certainly not superior to our own. The porters are Turks, young men from the mountains of Asia Minor, who live simply, enjoying tobacco, however, to excess, it being very cheap; and they realize by their labour a sufficient sum in a period of often not more than five or ten years, to retire and live in their simple way in the fertile valleys of Asia Minor. As to the boatmen, however, the writer just named is in error, for they are almost wholly Greeks, and indulge freely in the cheap wines which abound in the Levant, and, like the porters, they fully appreciate the use of tobacco.

To return from this digression; I shall now conclude with a recapitulation of the facts deducible from the foregoing observations. The Table given in the commencement of this paper comprises an enumeration of the cases which occurred among our crews and passengers, from the year 1845 (July) to (January) 1852, of which time, however, only 1165 days were spent at sea, or in foreign port.

During this period, 11,000 persons were on board the several ships I have been attached to, not including the large number of deck passengers, whose sojourn with us, as before remarked, seldom exceeded four days.

Of the 11,000 passengers and crews of the different ships 714 were ill; of which number 9 died.

The mean number of persons on board, each voyage, was 169; they spent on the average nineteen days of each month in the ship, and for some part of these nineteen days there were 11 persons ill.

The crew averaged 86 each voyage, of whom 4 were sick during some part of each month. The passengers averaged 83 each month; and during some part of the nineteen days of each month, 7 passengers were ill. It will be seen that nearly double the number of passengers were ill, compared with the

sick of the crew; this was owing to the large number of invalids amongst the former.

The preponderance of diseases of the alimentary canal may be partly accounted for by the number of chronic cases returning from the East.

Influenza, catarrh, and fever, are the second most numerous class of diseases noted in the Table.

Diseases of the organs of respiration are the next in order of frequency, and, after them, diseases of the liver, heart, and circulation.

The column showing the diseases of the generative system of both sexes includes many cases of uterine discharges, and cases of orchitis, which were apparently induced by a prolonged residence in hot climates.

In April, March, and December, influenza and febrile attacks predominated.

In November, January, and May, diseases of the lungs were most numerous.

Diseases of the alimentary canal were most prevalent in August, September, and November.

The liver, heart, and circulation (arteries and veins), were affected principally in November, June, and September.

Apoplexy was most seen in April, July, and August.

Neuralgic and gouty diseases were most common in March and April.

It will be seen, by reference to the Table, that the above are only approximations to a correct estimate of the illness of the seasons, as the number of days at sea varied from 74 to 122 for different months, and the average number of persons on board varied from 121 to 207,—I mean the average for the several years. As shown in the table, two births occurred on board the Ripon, and 9 deaths occurred from 1845 to January, 1852, in the ships to which I was attached.

The mean temperature, as seen in the Table, is taken from

the time of starting from Southampton, hence it is not a fair criterion of the temperature of the Mediterranean, where the temperature, during the greater part of the year, is very high.

In epidemics, from atmospheric causes, the crew first suffer, and of them, the morning watch generally first.

The great majority of diseases of the liver, fevers, and diseases of the nervous system occurs in the passengers returning from India.

The easterly winds in the Mediterranean, as I believe in most parts, at least of the eastern hemisphere, are the most unhealthy. With the north-east wind we there experience cold, dry weather; with the south-east wind, damp and oppressive; when the former wind blows, we find affections of the chest, rheumatism, and neuralgic cases predominate; and when the south-east or Levant wind blows, we experience that colic, and diseases of the alimentary canal generally, as well as rheumatism, prevail.

In dysentery I have found the motion of a ship injurious.

The withdrawal of grog has been attended with beneficial effect amongst our crews, and seamen are not reckless and improvident when they find steady employment held out to them as a just reward for good services. In fine, I may add my opinion that the principle of sailors' homes has been attended with the best results, and tends much to raise the character of the men "that go down to the sea in ships."

Art. XIII.—*Further Observations on Fractures in the Vicinity of the Ankle-Joint; the Removal of Spiculæ of Bone, &c.* By Richard G. H. Butcher, F. R. C. S. I., Examiner on Anatomy and Physiology in the Royal College of Surgeons in Ireland, Surgeon to Mercer's Hospital, &c.

In the last number of this Journal I have recorded and brought before the notice of the profession a number of cases of fracture in the neighbourhood of the ankle-joint, treated by a simple

and efficient method, in every instance securing to the sufferer the integrity of the joint and the normal functions of the limb. In relation to the subject, the operation of tenotomy, as facilitating reduction of the broken bones, has likewise been considered; and, from an impartial review of the facts adduced, certain principles were laid down.

It is well that all practical truths should be fully attested and put most prominently forward; and it is therefore that I now append, in corroboration of the statements which I have advanced, an account of the two following cases, which have recently occurred:—

Case VII.—*Fracture of the Tibia an inch above the Ankle-Joint, and of the Fibula a little higher up.*

Patrick Duffy, aged 30, a strongly-built, muscular man, by occupation a porter, was admitted into Mercer's Hospital February 8, 1852. When the accident happened he was in the act of descending a very steep flight of stone stairs; and having slipped he lost his balance, and was precipitated from very nearly the top to the bottom. The entire weight of his body came upon the left leg, which was violently twisted under him. The shock he sustained was very great, rendering him quite incapable of speech or motion. On being lifted from the position in which he had fallen and placed upon a bed, after a short time he recovered consciousness, and complained of pain in the leg. It was readily discovered by his friends that the limb was broken, and in an hour after the accident they conveyed him to the hospital. I was summoned immediately to see him, and found the patient somewhat confused, and incapable of giving any account of the accident,—a condition partly resulting from the concussion he had recently sustained, and partly arising from the inebriety consequent upon the ardent spirits which he had taken.

On examining the leg, the tibia was easily detected as being broken about an inch above the ankle-joint, and the

fibula a little higher up. There was a marked depression over the site of the fracture in the fibula; the superior fragment of the tibia projected sharply, owing to the foot and lower fragments being drawn backwards and upwards,—consequently an angle was formed salient forwards by the sharp fragments, which threatened every moment to protrude through the strained integuments; the foot was also greatly everted by the tensive contraction of the peroneal muscles. The amount of deformity, taken altogether, was very considerable; yet, by steady manipulation, the parts were restored to their original position. To counteract the contractile resistance of the great extensor muscles of the heel, it was essential to flex the leg upon the thigh. While the assistant maintained the limb in this position, the foot and lower fragments readily yielded to a force behind, which propelled them forwards, and then, by slight inversion of the foot, the action of the peroneal muscles was more than counteracted. In this favourable posture the limb was then retained in the fracture-box,—the advantages of which I have so strongly advocated in my former communication. By a reference to the mode of adjustment, it will at once be seen that the injured part was left uncovered, exposed for local applications,—a condition taken advantage of in this instance, as it was essential to reduce the exalted temperature by the frequent application of cold evaporating lotions. Immediately after the limb was adjusted the patient fell into a sound sleep, from which he awoke perfectly conscious.

In three hours after his admission and the doing-up of the fracture I visited him again, to make sure that no undue pressure was exerted upon the limb, and at this time he expressed himself as perfectly free from pain or spasm, and, to use his own words, "most comfortable."

February 9th. The patient has had no pain or spasms in the limb, yet there is a general nervousness present; he has been vigilant and restless during the night, with tremor of the hands; the tongue is also tremulous, and coated with a tena-

cious, yellowish paste. From the irregular habits of the man, —his partaking each day of large quantities of spirituous drinks,—an attack of delirium tremens was to be apprehended. I at once placed him on the opium treatment,—a practice that proved so beneficial in many instances which I have already recorded.

10th. The vigilance and restlessness have considerably subsided, and the patient had some sleep. The limb remains quite free from startings and pain, and lies as equally supported as when the apparatus was first adjusted; he is allowed nourishing food, and ordered to continue the opium.

13th. The patient enjoyed uninterrupted, refreshing sleep during the past two nights; all restlessness and tremulous motions of the tongue and hands are removed; the limb does not require to be stirred,—it lies in excellent position. He was ordered a warm rhubarb draught, which freed the bowels most desirably: had it been administered earlier, it would have only tended to depress still further the nervous system, and usher into existence that condition most to be apprehended and dreaded. Enemata are not at all applicable in those cases at first, from the disturbance necessarily occasioned in their administration: the slightest motion of the broken fragments tends to excitation of that spasm which, when once located in the muscles, becomes most embarrassing to the surgeon.

20th. Re-adjusted the cushions, bandages, &c.; the broken fragments lie in the best position towards each other; swelling entirely gone down; the opium to be omitted.

28th. Re-applied splints, fracture-box, &c.

March 9th. Union quite firm; put up the limb as before.

18th. On careful examination, the union is found to be quite solid; rolled the limb, and placed it resting on its posterior surface, evenly supported on a pillow with side-splints and foot-board; the fracture-box not required any longer.

21st. Removed splints altogether, and permitted the patient to move about with the assistance of crutches.

23rd. The motions of the ankle-joint are rapidly being regained; the amount of callus thrown out, owing to the close apposition of the broken bones from the first, is very limited, and will not at all interfere with the perfect functions of the part. On this day the patient was dismissed from the hospital, without the least deformity of the limb.

Case VIII.—*Comminuted Fracture of the Tibia and Fibula immediately above the Ankle-Joint, from direct violence.*

David Dixon, aged thirty-five years, a powerful, muscular man, a sailor by occupation, was admitted under my care into Mercer's Hospital, February 8, 1852. He was conveyed immediately from his ship, after suffering a very severe crushing accident; while assisting in the lowering of a large anchor, his right leg was caught between it and the side of the vessel with a force sufficient to break both bones above the ankle. On manipulation, I readily ascertained that the tibia was broken in several pieces an inch above the joint, and the fibula also comminuted, corresponding to the same position. The integuments over the site of fracture were greatly contused and discoloured from the rupture of small vessels and the effusion of blood freely through the areolar tissue for several inches up and down the limb. After experiencing considerable difficulty in overcoming the violent spasmodic action of the extensor muscles, I effected reduction of the broken bones; during this procedure the limb was flexed, and steadily held so by an assistant; the foot had likewise to be maintained inwards, owing to the distortion occasioned outwards by the spastic traction of the peroneal muscles, their support being lost. By the force applied as I have described, a suitable position was obtained, and the limb placed in the fracture-box, which, together with the side-splints, cushions, foot-board, and bandages, were adjusted with the most careful precision to complete that object.

February 15th. In this case no constitutional disturbance presented in the early management of it, the patient being a healthy

man and of regular habits; but from the perfect development of the muscular system, and the difficulties met with owing to this perfection, towards the reduction of the broken bones, I deemed it advisable to narcotize its irritability by large doses of opium. With this intention, a grain of opium was given every third hour for the first four-and-twenty, and with the best results; it was given in smaller doses after, and on the 17th was discontinued entirely. The mechanical means employed did not require any interference since applied; and cloths steeped in a cold evaporating wash were occasionally placed over the crushed part, so as to reduce the temperature and moderate the inflammation.

25th. All the extravasated blood has been removed; and from the first there was very little more inflammation present than was essential to the cure. Lymph is freely thrown out, matting together the fragments of bone, which before were moveable: there has been no necessity for disturbing the limb since its first adjustment.

27th. On this day I changed the splints, bandages, &c., for the first time since the patient's admission.

March 7th. All superficial swelling and discolouration nearly gone; the lymph effused has become firm, rendering the small pieces of bone belonging to both the tibia and fibula immoveable.

12th. I re-adjusted fracture-box, splints, &c.; there has been no stripping of the heel, neither was there pain referred to this region, so evenly did the cushions offer support.

22nd. The union between the broken bones is now quite solid, and the bond of connexion has not encroached on the ankle so as to obstruct in any degree the full flexion of the joint; neither is there the least eversion of the foot; and the mortice formed between the internal and external malleolus for the reception of the astragalus is not widened.

In a few days after this the patient was dismissed from the hospital, being able, by the assistance of a stick, to support the

weight of the body upon the limb, and to move without the least halt.

It is unnecessary, after the foregoing remarks, to offer any further comment on the successful issue of these cases[a].

ON THE REMOVAL OF SPICULÆ OF BONE IN COMMINUTED FRACTURE.

As to the time in which the removal of spiculæ of bone is called for in comminuted fracture, the case marked No. iv., in my former paper, offers a good illustration. It is there stated: "The deformity of the leg was very great, the fibula being broken in pieces, from about an inch above the extremity of the malleolus, for at least two inches; *one piece* in particular, a large one, was forced away from between the upper and lower fragments of the bone, and thrust under the skin on the anterior aspect of the leg, and a little above the joint, thus leaving a great depression, corresponding to the gap in the continuity of the lower part of the shaft of the bone." On the adjustment of the limb every effort was made, consistent with correct practice, to restore to position this detached piece of the fibula, but all to no effect, it projected sharply under the skin, and threatened several times during the treatment to ulcerate its way out; to prevent so unfavourable an occurrence every precaution was adopted; the part was left exposed, the integuments relaxed, and, above all, handling of the part was prohibited; my great anxiety being to stay the protrusion of the bone until the broken-up parts were consolidated and repaired, and so avert the production of compound fracture, a result greatly to be dreaded, more particularly so in this case, owing to the joint being implicated in the fracture.

On the 28th of December, 1851, the patient referred to was dismissed from the hospital, with the broken leg cured;

[a] There is one particular in the treatment which has been omitted in the former paper, namely, that in every case the lower third of the thigh, as well as the two upper thirds of the leg, was enveloped by the bandage external to the fracture-box.

and with instructions to return immediately, if the projecting piece of bone occasioned any annoyance. He was re-admitted on the 9th of February, 1852, ulceration having attacked the integuments and exposed the bone.

On examination it was found that the osseous matter, which was liberally exuded from the broken tibia, readily united with the end of the displaced piece of the fibula which had been permanently retained, and nourished chiefly by this ingrafting. The prominent part of the spicula was not in the least degree rounded off, but remained sharp, as the moment after the accident. I cut down upon it by an incision an inch and a half long; freed the surrounding parts adherent to it, and then, with a narrow-bladed forceps, cut off the bone at the line of its attachment to the tibia. In effecting this object the anterior tibial artery had to be divided,—the incision was enlarged up and down, and the vessel ligatured above and below. The wound was allowed to heal by granulation, with the object of implanting a new part, so as to guard against straining of the integuments above the joint, a position subjected to so much motion. After this operation the patient made a rapid recovery, and has been dismissed from the hospital, able to walk perfectly well.

In those cases where the spicula becomes attached by one end to the uniting callus of the fractured bones, as in the instance just recorded, the sharp extremity will not be rounded off, and it may lie under the integuments for years without producing ulceration, if no undue pressure be exerted over it from without. The following case affords a good illustration.

A man named Patrick Walsh, aged sixty-six years, was admitted into Mercer's Hospital, December 20th, 1850. Having been thrown down by a car in the street, he was slightly contused over the chest and limbs; but he directed my attention to an old fracture. His right leg was broken thirty-five years before, when engaged in the amusement of kicking foot-ball;—the site and outline of the fracture was nearly as evident as if it had

been a recent injury; the leg was an inch shorter than the sound one; the tibia was split from about its centre down into the lower third, the line of fracture being very oblique and traversing from without inwards, and the fibula was broken two-and-a-half inches from the extremity of the malleolus. The tibia was arched in front, and the lower fragment of the fibula directed forwards and inwards, its upper fragment also was inclined forwards, and considerably overlapped the lower; the edge of it was quite *sharp* beneath the skin, threatening every moment to protrude, yet, by the patient carefully guarding this part from pressure, it had continued there with impunity for so long a time.

When small spiculæ are completely isolated, they may act as foreign bodies and be cast out, but more frequently they are capable of contributing to the repair of the fracture, or, as sometimes occurs, they are surrounded each by a lymph cyst, which in many instances proves the medium of thus removal by absorption.

There is one more point of interest in the Case No. iv., in reference to the fact that the gap, at least an inch and a half in extent between the upper and lower fragments of the fibula, and created by the large piece of its shaft "thrust in front and above the joint," was afterwards repaired and filled up by a *firm osseous piece.* Now, this is an important practical point, if a portion of the shaft of a bone be removed by judicious management, a perfect osseous substitute may be procured. This fact is at variance with the doctrine inculcated by Sir A. Cooper, who maintained, that for the union of fractures it was essential that the broken bones should be kept in contact. "The first reason which I should state," says Sir A. Cooper[a], "for the want of union in fractures of the neck of the thigh-bone is the want of proper apposition of the bones; for if the broken extremities be in any part of the body kept asunder,

[a] Surgical Essays, vol. ii. p. 30.

ossific union is prevented." Again, in support of the axiom which I have laid down, I beg to refer to some cases recorded in the twelfth volume of the Medico-Chirurgical Transactions, page 167, one of which clearly proves the possibility of bony union after the removal of three inches of the tibia and the consequent separation of the bones to two inches. In Mr. Heaviside's Museum there were instances of extensive bony deposits between fractured surfaces that were not in apposition.

I shall conclude by a quotation from Rokitansky. In his Pathological Anatomy, when speaking of the repair of injuries of bone complicated with *loss* of substance, he writes: "Under favourable circumstances it is effected by the first intention, and the osseous mass, exuded from the surfaces of the wound in the bone, serves not merely to re-unite the bone, but also to supply the place of the part which has been lost."

Art. XIV.—*On the Mechanism of the Acoustic Phenomena of the Circulation of the Blood, with an Exposition of a new Element in the Causation of the First Sound of the Heart.* By Arthur Leared, M. B. T. C. D., L. R. C. S. I.; Physician to the Oulart Dispensary, Wexford; Ex-Clinical Assistant to the Meath Hospital, Dublin; late Resident Physician's Assistant, Hospital for Consumption and Diseases of the Chest, Brompton, London, &c.

Few subjects have more attracted the attention of physiologists, ever since the splendid accession to physical diagnosis in the discovery of auscultation by Laennec, than that of the acoustic phenomena of the circulatory apparatus. It is one, the details of which have been repeatedly investigated by many able and competent inquirers; and it is, therefore, with no affected hesitation that I proceed to explain my own convictions as regards certain points in connexion with it, differing as they do from the ideas at present current concerning them.

That the greatest difference of opinion exists amongst the

profession on this important subject is, however, undeniable. This is a proof that, in reference to it, our knowledge is still incomplete, and will at least form an excuse for a fresh attempt to add to it.

If we take, for example, the first sound of the heart, how many conflicting and widely different opinions have been advanced to account for it? How much has been written to uphold certain ingenious theories of its production? Under what prestige have not some of the investigations in reference to it been conducted, and their results given to the world?—and yet how far from settled do we not still find the subject? There is confessedly indicated by this striking want of unanimity, something radically defective in all the attempts hitherto made to explain the phenomenon,—something still unwarranted by rigid induction.

Long impressed with this feeling, I commenced my investigations by performing a number of experiments on animals in reference to the causes of the sounds of the heart. My object was chiefly to repeat those already published, with the view of testing them personally; and no part of the explanations of them now offered in this paper was preconceived at the time I approached the task[a].

But before bringing forward the conclusions I have arrived at, I think it will be requisite, especially as regards the sounds of the heart, to take a rapid glance at the explanations of them given by eminent living writers, and most generally received in these countries,—assigning my reasons where I do not acquiesce in them, and pointing out what I conceive has been established. Without taking such a course, I feel that, in an

[a] The subjects of these experiments, with the details of which I will not trouble the reader, were dogs, some of them of large size. Not being able to procure any woorara, I used for their destruction hydrocyanic acid of about seven times the strength of that of the Dublin Pharmacopœia, afterwards employing artificial respiration. In two instances I substituted chloroform inhalations, so as to produce profound anæsthesia, and performed vivisections of the animals, but I do not think any advantage was derived from the plan.

attempt like the present, I should run the risk of an apparent disregard for such high authorities as I shall presently quote. It is by no means my intention, however, to examine the merits of the many theories that have been advanced to account for these phenomena, nor would it suit the limits I propose to myself.

The London Committee of the British Association appointed to investigate this subject, of which Dr. C. B. Williams was a member, as the result of their experimental researches, adopted the conclusion:—"That the first sound of the heart, as heard in the chest, is generally complex in its nature, consisting of one constant or essential sound, and one perceptible only under certain circumstances. This constant element of the first sound may be considered as intrinsic, appearing to depend on the sudden transition of the ventricles from a state of flaccidity in diastole, to one of extreme tension in systole; while the extrinsic or subsidiary sound, which in a variety of circumstances contributes largely to the first sound, arises from the impulse of the heart against the parietes, chiefly of the thorax"[a].

I shall now briefly examine the data upon which this summary rests. The muscular theory of the production of the first sound appears to be founded on the observations previously made by Dr. Wollaston with regard to the production of sound during contraction of other portions of the muscular system[b]. Based by an easy analogy upon this, it certainly presents an inviting aspect, and it would, I think, be erroneous to contend that the sound is not derived in part from this source. If, with Andral, we regard the first sound as of a still more complex nature, this may easily be conceded; neither do I offer any objection to the "subsidiary sound" of the Committee. But that

[a] First Report of the London Committee of the British Scientific Association on the Motions and Sounds of the Heart. Read at the meeting at Bristol in 1836. *Vide* Pathology and Diagnosis of Diseases of the Chest, by C. J. B. Williams, M. D. Fourth Ed., p. 310.

[b] Philosophical Transactions, 1810.

the chief element of the first sound is to be sought for in muscular contraction, as stated by them, I conceive to be open to many palpable objections, some of which I subjoin.

First, The diversity of cause assigned for the production of the two sounds of the heart, by which the first is referred to the solid parietes, and the second, as it usually is by the advocates of this view, to the closure of membranous valves,—while in many cases their almost perfect similarity indicates no such distinction of origin,—offers, I think, strong presumptive evidence against this explanation of the first sound.

Secondly, The occurrence of closely allied sounds in certain aneurismal sacs clearly points to a parity of reasoning as regards their principal causation.

And thirdly, The easy transition of the normal first sound into *bruit de soufflet*, which always bears relation to the dynamic condition of the blood.

To meet Dr. Williams, however, on his own ground, it will be necessary to quote from his experiments, selecting only those portions of them that bear upon the questions at issue, and which have been put forward by himself to sustain the theory, that the muscular is the chief element of the first sound, as well as to disprove the location of this sound at a point which I purpose advocating as that of its maximum intensity[a]. He says,—"That the first sound is produced by the muscular contraction itself may be considered as proved by Obs. 8 and 9 of Exp. 1; in which every other possible source of sound was excluded, and the first sound still accompanied the systolic action of the ventricles." The observations alluded to are as follows:—"I pushed my finger through the mitral orifice into the left ventricle, and pressed on the right, so as to prevent the influx of blood into either ventricle; the ventricles continued to contract strongly (especially when irritated by the

[a] *Op. cit.* p. 303, *et seq.* I quote from Dr. Williams' own researches, as I have not the Report of the Committee before me; but he states, "there is little in it not previously ascertained in my experiments."

nail of the finger in the left), and the first sound was still distinct, but not so clear as when the ventricles contracted on their blood. The same phenomena were observed when both the arteries were severed from the heart."

He has also cited the above, as well as some other observations, to prove that the first sound cannot be caused by the rush of blood into the great arteries. The argument used is so obvious as not to require further mention; and I will now proceed to explain my reasons for dissenting from both positions.

The inference drawn from the above, *par voie d'exclusion*, by Dr. Williams is, that as the first sound remained after the abstraction of all other sources of it but the muscular, that alone must be its essential cause. Thus it is stated, that after the arrest of the influx of blood into the ventricles, the first sound continued, being still distinct, *but not so clear as when the ventricles contracted on their blood.* Let us, however, examine more closely the data employed.

In my own experiments on dogs, I found that the stethoscope, when applied to the exposed heart, elicited sounds even when the action of the organ was considerably impaired, and it was almost empty of blood, which might easily be mistaken—due allowance being made for unfavourable circumstances—for its normal first sound. This I noticed at times, when I should have conceived that the latter had become quite inaudible; I further ascertained that even after the contractions had quite ceased, by alternate pressure with my finger, so as to indent the ventricle while the stethoscope was still applied to it, the effect produced on the ear was very similar to that caused by the natural contractions. How are these anomalies to be explained? Every one familiar with the stethoscope is aware how great an obstacle the slightest contact of extraneous bodies in motion presents to the use of it. Even the friction of the hair against the ear-piece is often the cause of interruption, and the slightest movement of a finger on the cylinder is sufficient to prevent an accurate diagnosis, so exaggerated are all sounds

which are the result of contact with the instrument, compared with those which form the subject of investigation, and so different are the relations which they bear to each other. Now what happens in the cases to which I have referred, and what are the conditions present? Instead of being applied to a plane surface comparatively at rest, as in the examination of the heart in the living body, the instrument must be adjusted to the convex surface of the naked organ in rapid motion. From the uncertain contact thus obtained, and which it will be found almost impossible to rectify, pulses will be generated in the air contained in the stethoscope, and a twofold source of error will be induced,—first, from the motion of the organ causing by friction sonorous vibrations in the instrument itself; and, secondly, sonorous atmospheric commotions, owing to imperfect adjustment,—one or both of these being in constant operation, however delicately the manipulation may be conducted. Sounds thus developed, and conveyed to the ear by the stethoscope, being concentrated by its peculiar construction, and necessarily synchronous with the real first sound of the heart, become not only perfectly amalgamated with the latter if present, but most likely to be mistaken for it if absent. To this the low and impulsive character of both tends to contribute, whilst the effect of their separation is, from the same cause, rendered less appreciable.

We have, however, the testimony of Dr. Williams himself, while maintaining that the first sound still continued after the ingress of blood into the ventricles was prevented, that it was "*not so clear as when the ventricles contracted on their blood.*" The plain inference from this, and one that bears exactly on the point in question, is, that although a sound was still heard, it was not unattended with marked alteration. These are my reasons for distrusting the results of observations on the exposed and contracting hearts of animals, impressions not likely to be diminished from their having been undertaken with a view to explaining the sound by a preconceived idea, and then prov-

ing it by an *experimentum crucis.* I must, however, add, with much respect for the high authority of Dr. Williams and the Committee, that as my objections are also the result of actual experiment, I conceive I have advanced sufficient to cause others to hesitate in adopting their apparently insurmountable arguments, and to justify me in considering that the first sound of the heart has not been proved to depend essentially, as stated by them, on muscular contraction.

The explanation of the first sound originally proposed by Dr. Billing, which refers it to the tympanic closure of the mitral and tricuspid curtains, appears at least more specious than that just detailed. The analogy between it and the less disputed origin of the second sound from another set of valves, instead of attributing it to a cause of extreme diversity, certainly gives it this aspect. When fairly examined, its adoption, I think, nevertheless presents some fatal difficulties. Though designed alike to prevent the reflux of blood, the position and mode of action of the auriculo-ventricular valves are widely different from those of the arterial outlets. The former are contained within dense walls, yielding with the closure of the valves, which are chiefly acted upon by a vital mechanism. The latter, placed at the basis of fluid columns, inclosed within membranous parietes, are influenced by a re-action purely physical. The angles which the respective segments of each present when closed are also very unlike. That great diversity should exist in the capabilities of both these valves for producing and transmitting sounds is, therefore, what is only to be looked for. But that the functions of both sets of valves are capable of being performed without the occurrence of sounds, I think highly probable. And granting, as I do, that in certain cases those of the auriculo-ventricular orifices produce sounds, an insuperable objection that has been justly urged against their being the essential cause of the first sound remains to be stated. The closure of these valves occurring at the very commencement of the systole, a sound thus produced must be as-

signed to corresponding limits. We know, however, that the first sound is not abrupt, that it may be regarded as coincident with the duration of the systole, and hence are led to seek for some explanation of it in which this indication is not to be overlooked.

Dr. Carlile, in a paper published in the former series of this Journal, chiefly in reference to the motions of the heart, was the first to attribute the first sound to the ventricular outlets. He attempts, however, no explanation, and his description of it is very short, being wholly comprised in the following passage:—"There can be no doubt that, although Laennec was wrong in ascribing the first sound to the contraction of the muscles of the heart, he is right in connecting it with the ventricular systole, as these two correspond in duration, and the former is satisfactorily accounted for by the rush of blood into the great vessels which the latter produces"[a]. Where ingenuity has been so much taxed, and, in fact, overstrained, in attributing this sound to almost every possible part and function of the organ, it would be surprising if that of the motion of the the blood from its cavities into their discharging tubes had not previously been advanced. What is the proximate cause of the sound, however, Dr. Carlile, as we have seen, leaves completely in doubt; and although stated to be satisfactorily accounted for, his theory, in consequence, appears to have been very partially received. It has more recently been revived by Dr. Bellingham, who assigns friction as the immediate cause of the sound, an opinion to which, for several reasons, I cannot subscribe. The explanation of it that I have to offer is, so far as I know, new,—the principles upon which it is founded not having been referred to by any writer with whose works I am acquainted. But before entering on the subject, it will be necessary to present the reader with a statement of my views of the general acoustic phenomena of the circulation of the blood.

[a] See the First Series of this Journal, vol. iv. p. 105.

Regarded as a whole, the sounds observed in the circulatory system may be divided into two classes, which I will designate as—

1st. Those referrible to the circulating apparatus.

2nd. Those referrible to the circulating fluid:—*a.* Current Sounds. *b.* Concussion Sounds.

Under the first head may be placed the sound of muscular contraction, that of the impulse of the apex against the parietes, and any other causes which may be advanced as subsidiary sources of sound.

In the second class the first division embraces the various and appropriately-named *bruits* of Laennec. They are all abnormal, and have been observed in the heart, in the arteries of a certain size of perhaps all parts of the body, especially when affected by aneurism, and in certain venous trunks and sinuses. They are often associated with an appreciable tremor termed by the same author *frémissement.* The physical law of their production, although identical in all, is often dependent on conditions that are very dissimilar.

The second division of this class includes the natural sounds of the heart, and the sounds heard in certain aneurisms. Their production is dependent on the same cause,—the direct influence of the ventricular action within certain limits, and they are severally convertible into those of the first division of the same class.

It is not my intention, nor is it at all necessary to enter upon a full consideration of the mechanism of *bruit de soufflet.* This task has already been ably performed by Dr. Corrigan, in the former series of this Journal, and subsequently by Dr. Williams, in conjunction with the Committee of the British Association. The points at issue between these eminent observers will, however, require attention, and I shall venture to add a few experimental observations made by myself on the subject. In the opinion of Dr. Corrigan, the murmurs are not formed at the point of obstruction to the current in a tube, but by the vibration of the

wall beyond, from the rippling motion of the fluid caused by diminished tension, while, according to Dr. Williams, any condition of the wall of the tube beyond the obstructing point is not essential to the production of sound. I have repeated some of the experiments advanced by both these gentlemen in support of their respective positions, and the result induces me to adopt the view of Dr. Williams. It explains also, I think, better than the other, the occurrences of *bruit de soufflet* in the interior of the heart and in aneurisms. Dr. Corrigan has particularly dwelt on the association of *bruit de soufflet* with *frémissement.* In connexion with his idea,—that they both originate in the parietes,— he endeavours to show, that they are but manifestations of the same cause, vibration, through different senses, hearing and touch. If that were really the case, we should expect to find a constant relation between them, palpable to both senses, which, according to Dr. Corrigan's own experiment, as we shall presently see, does not exist. For the elastic tube used in former experiments he substituted one of block tin, beaten in at a certain point with a blow of a hammer. Water being now caused to pass through it, a loud *bruit de soufflet* was heard between the narrowed part and the discharging orifice, but no *frémissement* as when the elastic tube was employed. He explains it thus:—"The discharging orifice being left of full size, the fluid passing from the narrowed portion of the tube tended, in rushing towards the discharging orifice, to leave vacuums at the sides; the particles, somewhat removed out of the most rapid part of the stream, whirled round to supply these vacuums." So far I consider the explanation correct, and that thus the *bruit* can be accounted for, as owing to the commotion in the water itself, aided by its minor currents striking against the tubes. But he adds: "The vibratory motion of the fluid in this portion of the tube communicated its impulses to the sides of the tube, threw them into vibrations, and the sound was the result. No *frémissement* could be felt, because in this experiment the vibrations are too mi-

nute to be detected by the sense of touch. If this explanation be correct, anything that would stop the vibratory movement of the tube ought to stop the *bruit de soufflet*, and such is the case. The discharging orifice of the tube was now narrowed to a size less than the constricted part. On permitting the fluid to run down the tube, and issue from the discharging orifice, which it did to a distance of several feet with considerable force, no sound whatever was heard in the portion of the tube where before the sound was so loud. There was no sound now, because, from the discharging orifice being narrower, the portion of the tube between the constricted part and the discharging orifice was brought to a state similar to that of the intestine when tensely distended, described in the experiment, page 193; the sides of the tube could no longer vibrate, and there was, consequently, no sound"[a]. In both these experiments the change from unequal into equable motion in the water in the tubes, caused by increased tension, appears to me sufficient to account for the cessation of the *bruits* without having reference to the state of the tubes, since, if the vibrations of the tubes be regarded as the sole cause of the sounds, we should naturally look for a feeble sound, if for any, in the case in which the vibrations were too minute to be perceptible to the touch, and for a very loud sound in the case in which they were so marked as to cause the sensation of *frémissement*. But the reverse of this appears to have been the case. I do not overlook the influence of the tube or of the chamber containing the fluid, in conducting, modifying, and probably increasing sound; but I maintain that true *bruit de soufflet* can be produced in liquids independently of either. In proof of which I subjoin the following experiment[b]:—

[a] Dublin Journal of Medical Science, First Series, vol. x. p. 195.

[b] I purposely abstain from bringing into discussion any considerations founded on the abstruse nature of sound, but as there exists a real analogy between sounds produced in tubes, whether by water or air, I cite the following passage from the article "Acoustics," Encyclopædia Britannica, Seventh Edition, in support of the views

To the neck of an India rubber bottle, a tube of the same material, two feet long, was adapted by means of a short, thin one of brass. With an aperture in the side of the bottle, a brass box, provided with a valve opening inwards, was connected; the other extremity of the box being attached to another shorter, but wider, caoutchouc tube, the communication through this and the box, to the interior of the bottle, being wider at every point than that through the first-mentioned tubes. The free extremities of both tubes having been placed in a large vessel containing water; the end of the longer one was fixed horizontally with the surface, equidistant between it and the bottom of the vessel, and at a distance from its sides, but without infringing on its caliber in bending it. On alternately strongly compressing and relaxing the bottle, an active circulation ensued, at first attended by loud gurgling, but speedily on the expulsion of air assuming a steady and uniform progression; the influx which, from the arrangement of the valve was through the shorter tube, being, in consequence of the larger diameter of the tube and of the box, sufficient to allow of a constantly full effluent current through the longer tube.

A stethoscope was now partly introduced beneath the water in the reservoir, and the bell-part approached to the extremity of the longer tube, care having been taken that there should be no contact, and that the current should not impinge on the instrument. There was heard through it, when the ear was applied, a perfect rhythmical *bruit de soufflet*, loudest near the mouth of the tube, and decreasing in intensity as the stethoscope was moved from this position.

In this experiment the *bruit* was certainly not caused by

of the source of *bruit de soufflet* above advocated:—"One is apt to imagine that the sound of a pipe or flute is emitted from the wood, or other material of which it is composed; it really, however, arises from the cylinder of inclosed air striking against the reed of the pipe, or against the sides of the hole in the plate."

the vibrations of the vessel containing the water,—its dimensions completely forbidding such a supposition. Neither could it be caused by the vibrations of the tube, since, owing to the atmospheric pressure, it was quite full of water before the bottle was compressed, and when it was compressed, additional fluid was forced through it in a full stream, with considerable power, circumstances, as proved by Dr. Corrigan, that must have prevented it from vibrating. That it was caused by the currents issuing from the end of the tube, displacing the water in the reservoir, is plain.

In the tube itself a *bruit* was distinguishable for a short distance, but it gradually diminished from the end beneath the water, until it became lost before reaching the neck of the bottle, where none could be detected. This *bruit* was quite unattended with *frémissement*, as would not have been the case had it originated in the tube. I therefore regard the sound as merely transmitted from the water, as may easily be conceived. It could not, as has been said, have originated in the tube, as there was sufficient tension to prevent its contents from dividing into minor currents; but on their escaping from the aperture, this, although of full size, became relatively a constriction. From the divergence now occurring, the integrity of the fluid column was destroyed; it became divided into separate currents, and *bruit de soufflet* was formed on the same principle as when it occurs in front of an obstruction in a tube, or in one in which there is insufficient tension of its contents to prevent them from dividing, while to the hand placed in the reservoir, so as to receive these currents, a perceptible thrill (*frémissement*) was communicated. There was, however, this difference:—in a tube, obstruction to the diverging currents is chiefly lateral, while in my experiment a portion of the passive water in the reservoir was of necessity displaced in front of that issuing from the tube in an active state before *bruit de soufflet* could occur. On the relative manner in which this dis-

placement is effected, and the circumstances which regulate it, as I shall afterwards explain, an important part of my theory of the cardiac first sound depends.

I regard *bruit de soufflet*, then, as the result of a diminution mutually exerted in the pressure of the particles of a body of fluid in motion; some of the circumstances under which this occurs have been already alluded to. The consequence of this is, the main current becomes split into numerous smaller ones. The particles, in place of a progressive motion, in which an equable relation to each other was preserved, assume new and irregular movements. If these currents are confined within elastic walls against which they impinge, *frémissement* is produced. Its occurrence is, therefore, accidental; and *bruit de soufflet*, although certainly rendered louder by the intervention of solids in its mechanism, is capable of being produced altogether independently of them.

Under the second division of this class, or concussion sounds, I place, as I have said, the natural sounds of the heart, as well as those resembling them, heard in certain aneurisms. The latter, when double, belong almost exclusively to those formed on the superior or thoracic division of the aorta. Agreeing with Dr. Bellingham, that there is a sufficient general analogy between the normal and abnormal sounds of aneurism of the arch of the aorta and the normal and abnormal sounds of the heart to indicate a close affinity in their mechanical production,—I cannot coincide with the explanation of it which he offers. He says[a], "we have seen that normal and abnormal sounds which can scarcely be distinguished from the cardiac sounds are developed in an aneurismal sac simply by *friction* between the blood and the lining membrane of the orifice of the sac and its parietes; it is not too much to infer, therefore, that the same agency is capable of developing similar sounds in the heart. I

[a] Dublin Medical Press, vol. xix. p. 205. The sounds heard in thoracic aneurisms resembling the natural cardiac sounds have been termed by Dr. Bellingham their normal sounds, which, for the sake of convenience, I have adopted.

think, then, that it is at the orifices of the ventricles that the normal sounds of the heart are developed, particularly at the orifices of the left ventricle; the first sound at the arterial, the second at the auriculo-ventricular orifices; and that both are produced essentially by friction between the blood and the parietes of these orifices; the first during the systole of the ventricle; the second during its diastole."

It has been already proved by the experiment with the India rubber bottle, that during the passage of fluids, under a certain amount of tension, into a tube, friction cannot be regarded as even an auxiliary source of sound,—the passage being effected without any sound; while to prove that concussion, accompanied by sound, is capable of being produced in fluids under certain circumstances, I adduce the following experiment:—

The same apparatus having been employed as in the last experiment, a solution of gum Arabic, of a consistence to represent blood, was substituted for water, and the stethoscope having been applied as before, a sound, strongly resembling the first sound of the heart, was observed to accompany the junction of the fluids in the reservoir[a].

In this case, there not being the same facility for the divergence of the fluid cylinder on its escaping from the tube, owing to the viscidity of the fluid, its integrity was in a greater measure preserved. For the same reason, the fluid in the reservoir was displaced with greater difficulty, and in place of *bruit de*

[a] I have been the more careful to satisfy myself of the correctness of this observation, as Dr. Williams, after speaking of the great difficulty in making fluids originate sounds, states that, "on making an experiment with a gum-elastic bottle, by filling it with water, and then forcibly compressing it under water by the end of the stethoscope, avoiding the use of the hand, for that produces its own muscular sound, I have failed in procuring any sound at all approaching to that of the heart's contraction."—*Op. cit.* p. 296. But from what I have shown, it is plain that such a result was not to be looked for where water was used in the experiment, not to mention the difference in the apparatus employed. I have also succeeded with the above experiment by substituting a solution of treacle for gum-water.

Under the title of "acute anasarca," or "inflammatory œdema" of the scrotum, the late Mr. Liston has described an affection which leads to extensive sloughing of the integuments, and, according to his opinion, the disease is not substantially inflammatory. He says, alluding to the swelling of the scrotum: "This distention is or is not attended by redness or erythema of the surface; but there is reason to think, from the suddenness of the accession, and from the appearances on exposing the cellular tissue, that there is no actual inflammation of its texture, there being no induration, nor any appearance of lymph or puriform fluid in the areolæ." Now, without wishing to deny the probability of there being an affection of the scrotum, characterized by the sudden effusion of serosity, in large amount, into its areolar tissue, unaccompanied by any distinct inflammatory action, after carefully perusing, and duly considering the cases given in illustration, we incline strongly to the belief, that the affection, described by Mr. Liston as "acute anasarca of the scrotum," is identical with that which we have designated "gangrenous erysipelas" of that part. The symptoms of this affection, as we have usually observed them, are as follow:—The patient is first seized with a severe rigor, and soon the scrotum becomes red, swollen, and œdematous. The swelling rapidly increases, until it attains often an immense magnitude, presenting a bright red, glossy appearance; the rugæ being completely obliterated, from extreme tension of the areolar tissue beneath. As the effusion into its meshes proceeds, the feel conveyed on pressure becomes firmer, leading to the impression that a material, more solid than mere serum, occupies it; and if we make an incision into the part, turbid serum freely escapes, and the cut surfaces present a yellowish-white appearance. As the case progresses, the redness changes to a dusky hue, the swelling becomes soft and boggy to the feel; vesications, filled with a brownish serum, form on its surface, and the scrotum is suddenly converted into an extensive slough, which bears an exact resemblance to wet chamois leather stretched

across the testicles. When the slough is removed, the testes are laid bare, their only covering being the tunica vaginalis in which they are suspended. Once the slough is cast off, it is incredible how rapidly the reparative process is sometimes set up. Healthy granulations overspread the denuded surface, and quickly skin over; and if care be only taken to draw forward whatever portion of skin on each side may have escaped the destructive process, a very small cicatrix will remain. Accompanying these fearful local changes, constitutional effects of an alarming character are to be observed. In the very early stage, the fever is in general high, but it soon quickly merges into a low typhoid type, the predominant features of which are prostration of strength, restlessness, and loss of sleep. If, however, the patient has battled through the sloughing stage, as soon as the sloughs are cast off, all fever abates, and health is gradually restored.

In the greater number of cases we have witnessed, though the penis has been red, and the integuments infiltrated, it has generally escaped the sloughing process going on in the scrotum; but in some instances gangrene extends to it. In many cases, also, we have observed red patches leading from the scrotum in the direction of the spermatic cord to the lower part of the abdomen, under which circumstances the appearances, with the accompanying constitutional symptoms, bear so strong a resemblance to those caused by infiltration of urine, that nothing but the proof furnished from passing an instrument, and the history of the case, can enable us to arrive at a fair diagnosis.

The treatment of "gangrenous erysipelas" of the scrotum consists in making free incisions at the earliest possible period, facilitating the separation of the sloughs in the more advanced stages, and supporting the patient's strength all through by every means in our power. We have met with many such cases: the following, though an example of the idiopathic form of the affection, illustrates so well the foregoing observations

that we shall narrate it here. In it both penis and scrotum were involved in the sloughing process.

Case III.—*Idiopathic gangrenous Erysipelas of the Scrotum; Acute Form; Recovery.*

Patrick Tully, aged 28, a labourer, of intemperate habits, and exposed to much hardship, was admitted into hospital. He stated that, seven days previously to admission, he was seized with a violent rigor, followed by nausea and vomiting; and shortly afterwards he perceived the skin of the scrotum to become red and swollen, both which conditions rapidly increased.

On his admission, the whole scrotum, except a narrow border, almost entirely round, was found in a complete state of sphacelus, resembling a piece of wetted chamois leather, stretched across the testes. The penis was swollen, the subcutaneous areolar tissue, particularly that of the prepuce, being greatly infiltrated; the skin was of a deep red, almost purplish hue, and on the under surface of the organ was a slough of considerable size.

The constitutional symptoms were as follow:—

Pulse 92, weak and compressible; tongue coated with a moist yellow fur, and great thirst and restlessness; he spoke occasionally incoherently. The patient can pass urine in a full stream, and the perineum is altogether disengaged. A full-sized catheter having been first introduced, and it having been thus ascertained that no obstruction in the urethra was present, free incisions were made into the gangrened parts, which liberated a few drachms of pearl-coloured serous fluid.

On the following day, a line of demarcation was observed between the dead and living structures; the sloughs then commenced to separate rapidly, and his health began to improve; and in exactly five days from the date of his admission, the sloughs were completely removed, leaving the testes uncovered except by the tunica vaginalis, which presented a dull white colour. In a week afterwards, all the parts were covered with healthy granulations.

The slough on the penis continued to spread a little after his admission; but not long after the separation of those on the scrotum, it began to be detached, and was soon replaced by a vigorous granulating surface.

The treatment consisted in the application of poultices and the warm dressing, fomentations of poppy-heads with camphorated spirit, in the proportions of an ounce of the latter to a pint of the decoction of the former; wine, porter, and strong nutriment.

The foregoing is a case in which the progress of the disease was very acute; but we have met with some instances where the affection was comparatively chronic or subacute throughout its successive stages, and was limited in extent, as is well exemplified in the following case.

Case IV.—*Diffuse Inflammation of the Scrotum after Tapping for Hydrocele; Chronic Progress; Peculiar limits of Sloughing Process; Recovery.*

A. B., aged 55–60, in apparent rude health for his period of life, was tapped for hydrocele of the right tunica vaginalis testis. Its peculiar signs were well marked, with the exception of its shape, which was more globular than usual. The fluid drawn off was considerable, and its colour was tinted with more of a greenish hue than ordinary; it may also be remarked that it contained spermatozoa[a]. Notwithstanding directions to

[a] We have seen the hydrocele fluid assume varied shades of colour: as in the case noted it is often tinted green; we have seen it a perfect grass green; also colourless, almost aqueous, and these we have met with transparent and opaque; on two late occasions we found it like rice water, like milk and water, and like weak tea mixed with milk, and in such of a peculiarly disagreeable odour. In all these instances, with the exception of the grass green, we found spermatozoa very evident, in that we fancied at first that we saw these minute beings, but it appeared to us that the round bodies alone existed, the bristle-like tails were not visible to us. We have found them decidedly enjoying an independent motion, and that when the ovate bodies alone appeared to exist.

We made these examinations too carefully to be deceived, guarding ourselves

the contrary, this man went through his office work the day of the operation, and walked about without proper support of the scrotum. He was attacked with shivering about thirty-six hours afterwards, and felt the parts uneasy; he yet continued his duties, and he was now (on the fourth day) obliged to take to bed. The fever increased, and the scrotum swelled and assumed the character above described. A slough about the size of a shilling showed itself at the lowest part, where there was also œdema more considerable than elsewhere; an incision was made through it, and other incisions at points where its integuments were tense and shining. A considerable quantity of wheyish-coloured fluid escaped, the areolar tissue underneath presenting an ash-coloured appearance like matted wet tow. The margins of the incisions subsequently became gangrened, but only to a small extent, so that isolated patches of the scrotum were alone destroyed; the areolar tissue underneath separating in flakes to a variable extent, and proportionably undermining the remainder of it. Under the use of bark and stimulants, the constitutional symptoms gave way, and the local were repaired, with a comparatively limited destruction of the integuments, in about five weeks from the operation.

ACUTE INFLAMMATION OF THE TUNICA VAGINALIS TESTIS.

This form of inflammation, as attendant on the simple operation of tapping hydrocele, is not of common occurrence. Should it supervene, and assume that character ordinarily present, and always desirable in the radical cure of this disease as now adopted, it would hardly be entitled to notice in this commu-

against the ordinary sources of deception. In one specimen we also found a few octohedral crystals of oxalate of lime. We may add, that we have met with the hydrocele fluid loaded with cholesterine. In one case the fluid was dark as chocolate, apparently homogeneous, but when shaken and then examined, or when allowed to throw down a deposit, the floating micacious and glistening particles gave it much the appearance of variegated sealing wax. Indeed, we would venture to anticipate the microscopic discovery of cholesterine by this test, even when the colour is not much altered from the ordinary amber colour. It looks as if oil was mixed through the fluid.

nication; but when it exhibits a form to which we are anxious to direct attention, it requires great circumspection, not alone as regards early diagnosis, but also as to its efficient treatment, being always attended with much constitutional disturbance, and being productive of a series of local morbid changes indispensable to be familiar with. Like that of diffuse inflammation of the scrotum just noticed, it may be acute and rapid in its progress, whilst again it may be slow, and assume somewhat of a chronic or subacute character. We have never met with it that it has not been ushered in by constitutional symptoms, and those of a highly inflammatory and sthenic type, yet most treacherously gliding into the very opposite extreme.

In the variety of inflammation which follows a subacute course, the symptoms are most deceptive, and are often so unconnected and isolated, that it requires no small amount of attention for their detection. This is the form of inflammation that we have generally met with as contingent on tapping hydrocele, and the following case affords a good illustration of its features, both local and general, and also of the requisite treatment.

Case V.—*Acute Inflammation of the Tunica Vaginalis Testis, supervening on Tapping Hydrocele; Suppuration; Surgical Treatment; Recovery.*

Richard Kennedy, aged 46, labourer, and of tolerably healthy constitution, was for eight years the subject of hydrocele of the right tunica vaginalis testis, the history and nature of which require no particular notice. This hydrocele had been repeatedly tapped, and on one occasion was treated by acupuncture[a].

[b] We have not unfrequently adopted this mode of palliative treatment of hydrocele amongst the working classes, and we are strongly disposed to the opinion that it is more suited to them if unable to rest quiet after tapping. We have never witnessed any unfavourable result from it; and moreover, we think that, often, the accumulation of the fluid is less likely to recur so soon.

On Saturday, November 30, it was again tapped. The steps of the operation were perfect, not a trace of blood beyond that necessarily attendant on the wound made, was visible, and the fluid removed was of the ordinary character, and in quantity about twelve ounces. The necessary dressings were adjusted, and the usual directions given as to rest, abstinence, &c. The poor man was, notwithstanding, obliged to work at a very laborious employment in a forge throughout that day, and at bedtime was struck with acute pain in the testicle of the affected side, accompanied by uneasy sensations in its vicinity, and some difficulty in passing urine. Violent shivering also now supervened; he had nausea and vomiting, and all the symptoms of high inflammatory fever set in. Some medicines and a warm bath relieved him, but the pain in the testicle continued almost unabated until the night of Sunday, when the scrotum began to swell, and in proportion to its increase in size, the pain gradually diminished. He was admitted into hospital on Tuesday evening, the 3rd of December, and when visited on the following day, the scrotum was found enormously distended, its veins turgid, and its colour in the immediate vicinity of the wound, and for some distance around, of a vivid red, and in fact presenting all the characters of diffuse inflammation of this structure, but limited in its extent. There was no general œdema, and there was perfect freedom of motion of every portion of it elsewhere over the tumour. This had reached the size it possessed before the hydrocele was tapped four days previously, as may be somewhat estimated from the fact, that the tumour measured in the longitudinal direction from the perineum forwards, fifteen inches, and transversely, fourteen, assuming nearly a globular shape. It was tense in feel; not much intolerant of pressure, and communicated to the hand a peculiarly hot sensation. It appeared to have great density, and it could not be said that there was any very distinct sense of fluctuation. In no part was it translucent, and its weight was considerable. Accompanying these

local phenomena, there was fever, the prominent features of which were, urgent thirst, furred tongue, deranged bowels, and total loss of appetite. The pulse was quick, and the skin dry; but there was really no appreciable amount of suffering complained of from the tumour. The case was considered and treated as one of inflammation of the sac of the hydrocele, with effusion, and local and constitutional remedies were accordingly prescribed.

The note taken on the 6th December, three days after admission into hospital, was as follows:—Fever, thirst, and restlesness less; no pain in the tumour, except when coughing or sneezing, and then it is all referred to the groin; no abdominal tenderness; all redness of scrotum removed; feeling of tension, and pain on pressure, less also; and he expresses himself as free from any pain when at rest. He was ordered diaphoretic mixture and evaporating lotion, as before.

9th. Local symptoms almost stationary; no increase of swelling; no pain; no redness; tension less, but sense of fluctuation more distinct; general symptoms also more stationary; tongue clean, but yet thirst and loss of appetite. He was directed to continue the local applications, cold or warm as agreeable, and the tumour to be supported; infusion of bark was ordered for him to-day.

10th. Twelfth day from the operation of tapping, and from the occurrence of rigor. Swelling not increased, as ascertained by measurement; absence of pain of any moment, no matter in what direction the tumour is moved; sensation of fluctuation more distinct, especially at the anterior part; weight considerable, and total absence of transparency; no discoloration of the integuments of the scrotum; in two or three patches there is some feeling of œdema, but yet the whole scrotum is moveable over the tumour; fever continues, and at times a feeling of chilliness is experienced; the skin is generally moist and damp. Treatment, general and local, was continued, and more generous diet ordered.

12th. Symptoms much the same; feeling of chilliness occasional; appearance of tumour and sensations in it are much as before; no pain; no redness; œdema equally limited. Local and constitutional remedies as before.

13th, 14th, 15th. The notes on these respective days, as regarded the constitutional symptoms, were, that there was rather more of a disposition to sweating, but no rigor had occurred; and that the countenance indicated somewhat of suffering, though none was complained of; fever was persistent, though diminished; pulse ranging between 80 and 90; tongue clean; thirst less, and food relished. There was superadded to the local symptoms already noted, an extension of the œdematous patches of the scrotum, with a slight tint of red on the surface; yet the absence of any pain, at least of moment, in the tumour was such that it could be poised in the hand, and turned from side to side without any annoyance, and considerable pressure was equally tolerated. There was the sensation of an additional weight in the tumour, and fluctuation in portions of it was manifest. No change was made in the treatment.

16th. Rather more fever, yet no rigor; no chill of any kind; pulse as before; scrotum somewhat more full and œdematous; not uniformly so, but in patches, and here the sensation of fluctuation more distinct; comparatively little pain even when firmly pressed.

17th. General feeling of uneasiness complained of; uncomfortable sensations in the tumour, but not amounting to pain; scrotum more extensively œdematous, and the patches of redness alluded to, more diffused; bulging of scrotum at two distinct points in this situation increased, and sensation of thinning and fluctuation more manifest; countenance haggard; sweating more profuse; other constitutional symptoms stationary.

The opinion now entertained in consultation was, that the case had reached that stage in which surgical interference was called for; that suppuration had taken place within the sac of

the tunica vaginalis; that the cavity should be fairly exposed, and the treatment afterwards conducted on ordinary principles. These steps were accordingly adopted, and a free longitudinal incision being made, a quantity, not much less than a pint, of serous fluid tinged with blood and mixed with pus and flakes of lymph, escaped. This was totally devoid of any fœtor, and no coagula of blood or fibrine were present. The tunica vaginalis was enormously thickened, especially in its anterior portions, where it was more than half-an-inch in depth, and the whole appearance resembled much that of an aggravated case of pericarditis. The thickening was evidently the result of the effusion of strata of plastic lymph, and this lymph, now firm and consistent, extended upwards towards the spermatic cord and downwards below the site of the testicle. The latter was slightly coated, but its consistence and size were natural; thus confirming the beautiful pathological law first inculcated by Gendrin. The surface of the whole cavity exposed was smooth; it communicated to the finger a soft, villous feel, and its colour was uniformly of a lightish grey, with somewhat of a pinkish tint. It was not highly vascular-looking, neither did it present any granulating appearances. It is unnecessary to particularize the subsequent treatment of the case. Primary hemorrhage was guarded against; the requisite dressings were varied according to the stages of the reparative processes set up, and ultimate recovery took place, the sac of the tunica vaginalis being completely obliterated. It may also be remarked, that the treatment above noted was not followed by any constitutional disturbance. On the contrary, on the day of the operation the man ate his meals as usual, and had little or no suffering beyond that naturally to be expected.

The length at which we have detailed the particular features of this case will render it unnecessary to extend our remarks much further.

The question of the presence of hematocele, in the first instance, at once suggests itself, but is disposed of when we reflect

on the history of the case, and when we contrast it with the morbid changes exposed at the operation. The necessity of an earlier interference in the way of operation might also be considered, but the character of the constitutional and the local symptoms, in cases of which we now treat, is really very deceptive. Neither one nor the other have the semblance of great intensity. The attendant fever is only violent at its onset, and then lapses into a state which, for the time, reconciles both patient and surgeon to its presence; and the local symptoms are, in reality, not severe, after the three or four first days. This is not unfrequently the case in inflammation of serous membranes in other situations, where copious effusion takes place rapidly, and we are very much disposed to think that too early interference is injurious. In cases which we allude to, nature often does her work better with closed walls until a certain stage, when the surgeon may assist her; but if he does so earlier, symptoms of serious local and constitutional disturbance may be superinduced, and the history of the radical cure of hydrocele confirms this view as regards the tunica vaginalis. When inflammation attacks its cavity after tapping, we have always observed that it runs into suppuration, or rather that it is identified with it; and amongst the cases which have fallen under our notice, we cannot bring to our recollection one in which plastic effusions did not take place to an equal, if not greater extent than in the case noted, and in which the serum effused was not largely mixed with purulent matter, and in all, the treatment adopted immediately stayed the constitutional symptoms, and the local progressed most favourably.

It would appear to us that the interference of the surgeon beyond the adoption of those antiphlogistic and general measures, unnecessary here to specify, must be entirely influenced by the circumstance of the case, and that the period for interference should not be permitted to exceed those limits when the implication of the coverings of the tunica vaginalis is manifest. If the scrotum become œdematous, in patches or other-

wise, if its natural mobility over the tunica vaginalis cease, and if, in addition, there be the slightest disposition to the supervention of diffuse inflammation, ever so limited in extent, we should not hesitate to adopt treatment, as in the above case, no matter what may be the sensations of the patient in the part, or what constitutional symptoms may be present, otherwise we should apprehend very serious results from the complication of the worst form of diffuse inflammation of the scrotum.

The last division of our subject, namely, the combination of the three lesions described: hematocele, inflammation of the scrotum, and of the tunica vaginalis, requires little or no comment, as an accurate recollection of the substantive symptoms of each will at once satisfy the practitioner of the nature of the case. The following short report will serve as an illustration:—

Case VI.—W. C., aged 45–50, was tapped for hydrocele of the tunica vaginalis; in the operation it was obvious, from the history given, that a large vessel was wounded, and that effusion of blood into the cavity of the sac was the result. He applied at hospital about a week after the operation; the scrotum was distended to the size of a swan's egg; the integuments were œdematous and of a dusky hue, and the seat of the incision made in the operation was sloughing, and from it was exuding a serous fluid tinged with blood and excessively fetid. The integuments around were infiltrated with a wheyish fluid, which by pressure passed by the sides of the slough. A probe passed into the opening, moved freely under them and to a considerable extent, and without difficulty entered the tunica vaginalis, when a most offensive treacly discharge escaped. The amount of pain complained of was comparatively trifling, and the constitutional symptoms, though of a low asthenic character, were scarcely so severe as might have been expected in a case of the kind. A sharp-pointed bistoury was introduced at the aperture, and the sac of the tunica vaginalis freely laid open above and below it; dark grumous blood, of a most fetid na-

ture, mixed with large lumps of coagula, with pus, and with sloughs, was removed, and the cavity dressed with pledgets of lint damped with turpentine. The tunica vaginalis was like parchment, but the testicle, as in the last case, was soft in feel and of the usual size. In addition to the local treatment, every support was given to the constitution, and the man recovered perfectly in a fortnight after his admission into hospital.

In concluding our observations for the present, we may add that, although we cannot, perhaps, lay claim to much originality, yet we are not thereby deterred from laying them before the profession, as the concentration of opinions on practical subjects, when confirmed by a reference to cases, cannot be otherwise than useful. Under the respective sections we have adopted, most valuable information is, doubtless, to be gleaned from ancient and from modern authors; yet the special application of "remarks on the casualties and contingencies attendant on the palliative treatment of hydrocele of the tunica vaginalis testis" appeared to us to be desirable, from the variety of character they often assume in their origin and in their progress. That form of hematocele illustrated in the second case is peculiarly deserving of attention, as being by no means unlikely to occur in large, flabby hydroceles; and under the head of "acute inflammation of the tunica vaginalis testis," the details of the fifth case, and of that which follows, cannot fail to excite much interest in the mind of the anatomist and pathologist, quite apart from any surgical value they may possess.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Note sur le Redresseur Utérin (Pessaire Intra-Utérin) Articulé, et sur son Emploi dans le Traitement radical des Déplacements de la Matrice. Par M. Valleix, Médecin de l'Hôpital Beaujon, &c[a].

Mode de Traitement très-simple des Rétroversions de l'Utérus.—Réducteur à Air. Par M. le Docteur A. Favrot[b].

Those of our readers who have read the discussions which have recently taken place at certain societies in London, concerning diseases of the uterus and their treatment, are, probably, convinced not only that "much *may* be said on both sides," but also that much more has been said on both sides than is quite creditable to the good taste and good feeling of either party. Moreover, there has been a singular abstinence from a candid and fair estimate both of the existence and frequency of certain diseases, and of the remedies proposed.

We have been told that the profession in this country is "very slow," because we object to receive everything on the authority of Edinburgh; and now we suppose we shall receive the same compliment from London because we do not choose to give up the results of our own experience under the denunciations of a London authority. Be it so: we are quite satisfied to take a middle course, neither rejecting nor adopting opinions or treatment because they are new, but because they may be true. We cannot hesitate, nor have we ever hesitated to denounce, *unnecessary* examinations in any mode as immoral, and unnecessary meddling with the uterine organs as injurious;

[a] Bulletin Générale de Thérapeutique Médicale et Chirurgicale, vol. xli. Paris: 1851, p. 248.

[b] Ibid. p. 321.

but, on the other hand, we are not going to abjure such valuable instruments as the speculum and uterine sound because they have been misused, or because a London authority chooses to denounce them.

Thus much we have thought it advisable to say; but we do not intend at present to inflict upon our readers (who must be rather sick of the subject) any lengthened remarks upon uterine diseases and their remedies; we wish now to direct their attention to some modifications of Dr. Simpson's instruments, by M. Valleix, and we gladly avail ourselves of the opportunity afforded by our exchange arrangements with M. Debout, Editor of the Bulletin de Thérapeutique, to illustrate the subject.

The uterus may either be turned backwards in the pelvis (retroversion), or the body may be flexed backwards upon the cervix (retroflexion). To remedy either of these displacements, Dr. Simpson has contrived an instrument (Fig 1), consisting of two separate parts; the prong, B, being introduced into the uterus, the outer portion of the instrument, which is fastened over the symphisis pubis, is joined to the internal portion at A.

Fig. 1.

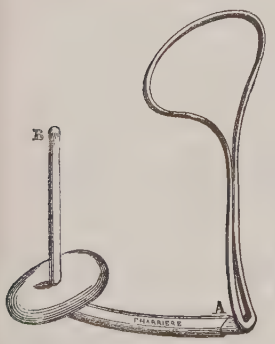
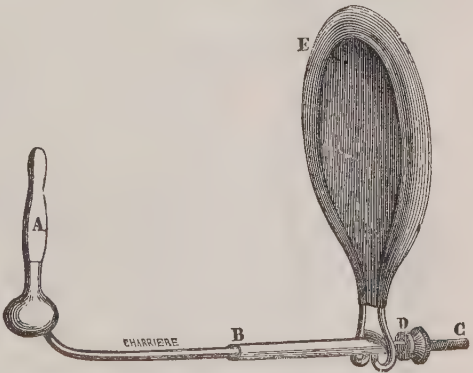


Fig. 2.



The first alteration made by M. Valleix was to lighten the obturator at the lower portion of the prong, and to join permanently the two portions of the instrument, allowing of adjustment by means of a screw and slide, D, B. (Fig. 2.)

The next change was to allow of a different degree of elevation in the prong, according to the peculiarities of the case, and this he effected by a more complicated apparatus.

The upright prong and the horizontal branch are united by

a joint under the control of the screw, A (Fig. 3), by turning which the elevation required may be exactly obtained, while

Fig. 3.

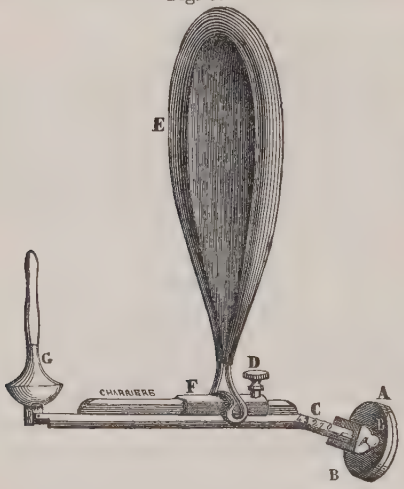


Fig. 4.

Fig. 5.

the distance of the os uteri from the os externum is accommodated by the slide, F, and the screw, D.

Fig. 6.

Fig. 7.

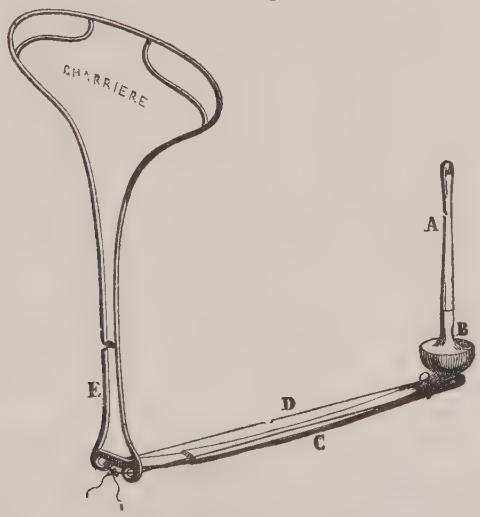
M. Valleix conceives that this arrangement greatly facilitated the introduction of the instrument, but he soon found that it was too heavy, and that the projection into the vulva of the handle of the screw, A, B, occasioned considerable inconvenience, and could be borne but a short time. This led him to consult M. Charriere, and the following instrument (Figs. 6, 7, 8), is the result of their efforts.

We have here the perpendicular, F, and horizontal, L, branches connected by a joint, H, and extended. The disk, G, is small, and below it are two threads, passing through a hole, I, and by which the two portions of the instrument are ultimately connected. The horizontal branch, M, is hollow, as in Dr. Simpson's instrument for receiving a horizontal branch from the external portion of the instrument.

Fig. 7 is a handle to render the introduction and application of the instrument more easy. The point of the blade is passed into the hollow

branch (Fig. 6, M), and the whole introduced in a straight position into the vagina. Once the point of the uterine or perpendicular branch is introduced through the os uteri, a little pressure backwards will bend the joint of the instrument, and when this flexion is complete we may hear the *click* of a spring, which renders the flexion permanent; then, inserting the horizontal projection of the external portion of the instrument (Fig. 8, D), the threads are to be made fast in two eyes, and we have the instrument complete and *in situ.*

Fig. 8.



It must be confessed that these successive alterations are somewhat retrograde, the latter instrument being much more like Dr. Simpson's than the former: differing from it only in the smaller size of the obturator, the joint, and the ligatures.

So much for the instrument itself, a much more important question remains, viz., its suitability and success. Looking at the peculiar deflexion it is intended to remedy, we cannot deny its mechanical fitness for the purpose. But the question is more than one of mechanical adaptation, and involves not only the consideration of whether the uterus can bear with impunity the presence of such a foreign body, but also, in a wide sense, the question of the extent of uterine mobility in health, which no one has yet tested. For our own part we believe that in women who have borne children, and when the pelvis is empty, there

is a wide latitude to be allowed: that the uterus, in fact, may recline in various directions, and if an examination be made, it will be found so deflected; but this is not disease, nor attended with inconvenience. It is quite possible so to deflect the uterus with the uterine sound, without the patient being conscious of any change[a]. Such a state requires no remedy; and we believe that this class is very large, and constitutes the chief of the cases whose alleged frequency has caused such astonishment.

But either retroversion or retroflexion may certainly be caused by disease, and if the disease still exists, it would appear more philosophical first to cure it, and the cause being removed, the effect will cease. But if it do not, then these cases, we confess, do seem fair subjects for some mechanical contrivance as much as those of prolapsus uteri. Whether Dr. Simpson's instruments be *adequate* and *safe* for this purpose; whether the uterus will bear it, or in what cases it will not, is a matter of experience upon which observers differ. As yet the cases in which it has been fairly tried are too few for positive conclusions; but even if we admit, with Dr. Simpson, that some bear it a long time with impunity, there are other cases which prove that very lamentable consequences may result. The more evidence we can accumulate the better, and on this account we shall lay before our readers the results of M. Valleix's experience, only regretting that so accurate an observer has not given the number of cases in which he tried it.

As a preliminary, M. Valleix always uses the uterine sound, not merely for diagnosis, but to replace the uterus, and especially to familiarize it with a foreign body, and he takes considerable pains to adjust the length of the prong to the length of the uterine cavity. Introduced with these precautions, he states that the instruments are generally very well borne after the first day. Frequently there are colicky pains, and a kind of tenesmus, as though the uterus sought to expel a foreign body, but after a time these cease, and the instrument is borne for eight, ten, or fifteen days, not only without pain, but with a sense of relief. Some patients could not bear the instrument more than from ten to twenty-four hours after the first application. This chiefly occurred in females who had never had children, or who were within a few days of a menstrual period. It was remarked,

[a] We beg leave to direct the attention of such of our readers as are conversant with uterine diseases to this point. We have satisfied ourselves that such a variety of retroversion (not retroflexion) may exist; but we should gladly have our own view confirmed by that of others.

that the introduction of the pessary brought on menstruation before the proper time, and in greater abundance, and with unusual facility.

The length of time which the instrument should be worn M. Valleix found to vary; so long as neither congestion nor pain is produced, it may be safely left in the uterus. He adds: "the females to whom I have applied it, and I apply it every day, have exhibited no injury from its use."

Such is the experience of M. Valleix, and it deserves great weight; although we cannot say that it has removed our objections, we are willing to admit that certain cases do occur in which the instrument may be useful if the uterus is found to bear it. Having said this, however, we must protest against its indiscriminate employment.

It may be in the recollection of our readers, that Dr. Halpin of Cavan some years ago proposed to restore a retroverted pregnant uterus to its normal position by means of pressure made by a bladder, introduced into the vagina, and in one case he succeeded. Very recently Dr. Favrot has submitted to the Académie de Médecine of Paris a proposal to effect the same end by means of a caoutchouc bladder introduced into the rectum, and then inflated by means of an India rubber bottle and tube, with stop-cock, &c.

Fig. 1.

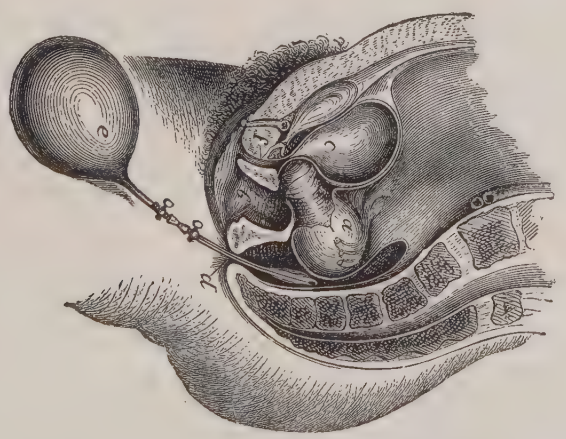
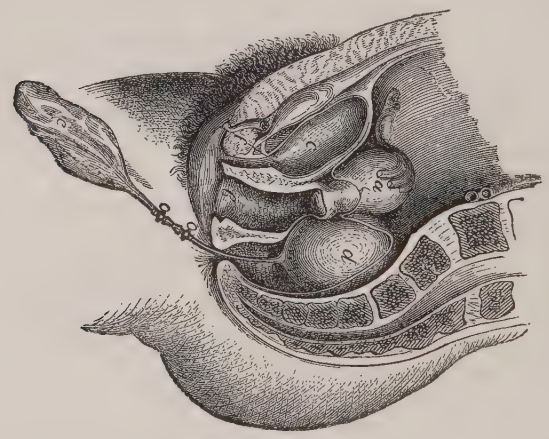


Fig. 1 represents the caoutchouc bladder introduced empty into the rectum by means of a rod, and connected by its stem with the bottle externally, which is full of air. Having been

placed close to the retroverted fundus of the uterus, *a*, and the internal rod withdrawn, the vulcanized caoutchouc bottle is then to be connected with its stem, and the air steadily forced in. The pressure thus exerted may be very considerable, and Dr. Favrot conceives that it will be sufficient to restore the uterus to its proper position, as in fig. 2.

Fig. 2.



The two parts of the instrument are then to be separated, and the internal one left *in situ* so long as may be necessary The amount of air can be exactly regulated according to the feelings of the patient, and the instrument may be withdrawn occasionally, and re-introduced if desirable.

We do not know whether it has been actually tried, but we cannot hesitate to express our opinion of its ingenuity, and of its apparent adequacy for the purpose of reverting the uterus.

On the Diseases of the Bladder and Prostate Gland. By William Coulson, Surgeon to St. Mary's Hospital, &c. London: Churchill. 1852. Fourth Edition.

No work would prove of greater advantage to the profession than one embodying a full and accurate description of the affections of the entire urinary apparatus, including a faithful representation of the characters of the urine in health and disease:—one which, by bringing, within the compass of a volume of no extravagant size, practical information upon all the im-

portant subjects connected therewith, would save the practitioner and the student the time and trouble now expended in reading through an almost endless list of monographs. We possess many valuable works of this nature upon other classes of affections; why should there be a void in this particular department of medicine?

Mr. Coulson's work carries out to a considerable extent the object required, for it embraces a description of the normal and abnormal characters of the urine, with an account of the diseases of the bladder and prostate gland; but affections of the urethra and kidneys receive not the slightest notice from him.

The volume may be divided into four parts. The first treats of the normal characters of the urine; the second of the abnormal; the third of the various diseases of the bladder, with their symptoms, diagnosis, and treatment; and the fourth of affections of the prostate gland.

Now a work of this comprehensive nature must of necessity be chiefly a compilation: to test its value, therefore, by the standard of originality would be unfair. The claim to merit of such a book should, we conceive, rest upon the amount of labour bestowed in the construction of its materials; upon the accuracy of the information culled from other sources; and upon the judgment with which the opinions of authorities are selected. That Mr. Coulson has in great measure realized his claim upon these grounds, we feel it but just to declare. The work has already passed through three editions, and the author is fully justified in bringing out a fourth now, when we recollect the vast improvement that has taken place in our knowledge on many points in urinary pathology since the date of the previous edition ten years since. There is no department of scientific research that has within the last few years been more extensively widened, and has gained greater accessions than the physiology and pathology of the renal secretion. The labours of Bright, Christison, Osborne, Simon, Golding Bird, Bence Jones, &c., have yielded a large amount of valuable instruction, and have given a stimulus to others to explore the same field, still rich with products; while the perfection to which the application of the microscope has lately been brought throws a peculiarly clear light upon the subject, and gives to our powers of diagnosis an accuracy which otherwise they could not have obtained, and which before they did not possess.

The first part of the work requires no particular notice. The second, which treats of the abnormal characters of the urine, the author commences with the subject of its albumi-

nous condition. Simple and easy of application as are the tests for the presence of albumen in the urine, and important as are the conclusions to be drawn therefrom, nothing can be more careless or unscientific than the manner in which practitioners are frequently observed to conduct the investigation. The most junior student knows that heat and nitric acid are the common tests for the presence of albumen; but many practitioners seem to forget that there exist numerous sources of fallacy which, if not attended to, prevent proper conclusions from being arrived at; so that the failure of the test to produce visible evidence of the presence of albumen is no proof of its absence, unless all the sources of error are carefully obviated; while, on the other hand, if similar precautions be not observed, the presence of albumen may be inferred, when, in reality, it does not exist. Mr. Coulson draws attention to these sources of fallacy.

To know that albumen is present is, however, of but partial advantage, unless we can ascertain the source from whence it comes, and this end can, as the author justly remarks, be in a great measure attained by the assistance of the microscope. It is obviously of the utmost importance, as well for the purposes of diagnosis as of prognosis, to be able to decide whether the albumen present in the urine results from disease of the kidney, or whether it is attributable to the admixture of blood or pus which has been derived from some of the urinary passages : and how can this be done unless by the aid of the microscope? When we are enabled, through its instrumentality, to detect the presence of fibrinous casts of the renal urinary ducts in the urine, whatever albumen is found to coexist should be inferred to arise from congestion of the kidney; whereas, if these fibrinous casts are undiscoverable, then the conclusion should be, that the albumen comes from another source. Again, albumen in the urine may, as we have said, be derived from the admixture with it of blood or pus; now not only can the presence of both these fluids be recognised with ease by the microscope, but, by attending to the circumstance of the presence or absence of the fibrinous casts already alluded to we shall be able to decide with tolerable certainty whether the blood or pus has had its origin from the kidney, or from some other part of the urinary apparatus.

The presence of sugar in the urine has been at all times viewed with the greatest interest by pathologists, and many have been the ingenious theories put forward relative to its origin, and various the conclusions as to its treatment deduced. The tests for sugar are numerous, but for our own part we

consider Mr. Moore's the simplest, most easy of practical application, and also as decisive as any other. Mr. Coulson seems to prefer the copper tests of Trommer and Capezzuoli as being more perfect, but thinks, that for the purposes of convenience the employment of yeast is the best, especially as it is an extremely delicate one, being sufficient to detect one part of sugar in a thousand parts of urine.

Any one much in the habit of examining specimens of urine with the microscope must be aware how extremely common is the presence of oxalate of lime in that fluid. A little reflection will render it evident that, in consequence of the great frequency with which this deposit appears in it, its presence becomes of significance only according to the circumstances under which it is found. Many causes compatible with tolerably good health may produce the temporary appearance of oxalate of lime in the urine; but when the salt is formed in large amount, when it is permanent and not temporary in its occurrence, and particularly when it coincides with a prostrate condition of the nervous energy, its presence must be viewed as a symptom of no inconsiderable import. We have no doubt that the chief fertile cause of this production of oxalate of lime in the urine, together with that peculiar condition of the system, termed oxaluria, which accompanies it, is due to a long-continued abuse of the sexual powers. We have met with numberless instances of this kind, and we need hardly add, that for the removal of the oxaluria it is necessary to assail the root of the evil, and not to be content with simply addressing our treatment to the deposit, which is only a symptom of a general disordered state of system. The author makes some useful remarks upon the subject of oxalate of lime in the urine, the substance of which will be chiefly found in the five following propositions, which we quote:—

"1. The occasional presence of a few crystals is no indication of disease.

"2. The ingestion of aliment containing oxalic acid is often followed by the excretion of oxalate of lime with the urine.

"3. The occurrence of a large quantity of oxalate of lime in the urine, if on the preceding day the patient has indulged freely in the use of sparkling wines or ales, is of no moment.

"4. Crystals of oxalate of lime are exceedingly common in the urine of those suffering from acute rheumatism, or other diseases attended with the excretion of urate of ammonia.

"5. The urine of persons whose lungs are emphysematous, or in whom from other causes imperfect oxidation of the blood is effected, pretty constantly contains the salt in question.

"6. If the latter set of cases be excluded, the constant presence of oxalate of lime in the urine is a valuable sign of disordered digestion, and important as an indication of the treatment to be pursued."

We now enter upon the consideration of that portion of the work which treats of diseases of the bladder: this the author opens with the subject of irritability of that viscus. Irritability of the bladder is, without almost an exception, a symptom or effect of disease, either in some part of the urinary apparatus, or elsewhere in the system, or the consequence of a morbid condition of the urine. Indeed, we doubt much if there is such a disease to be met with as pure idiopathic irritability of the bladder—irritability not traceable to some direct, tangible cause. Many of those cases which Mr. Coulson would consider as "the result of a mere nervous state of the organ, of the same spasmodic nature as that which in other individuals and other parts occasions a constant winking of the eyes or twitches of the muscles,"—are, we feel confident, symptomatic of some derangement which care and attention would discover, or the effect of a highly exalted state of the entire nervous system; nay, more, the irritability is often apparent only in hysterical subjects. The absolute amount of the urine is often greatly increased, so that the frequency of micturition observed is due not to any derangement, idiopathic or symptomatic, in the functions of the bladder, but is merely the necessary consequence of the increased duty imposed upon the organ. The difference between real and apparent irritability of the bladder it cannot be expected should be recognised by the patient, but even the practitioner may, if he does not pay attention, confound the two cases, and be thus altogether misled.

The author points out the various causes of irritability of the bladder; and alludes to one circumstance of much pathological interest connected with it, namely, that while the capacity of the bladder is in all cases diminished, the parietes of the viscus are found increased in thickness only in those in which there exists obstruction in the urethra; "it would, therefore, appear that long-continued irritation produces actual absorption of part of the substance of the bladder."

"Irritability of the bladder may, in many cases, be mistaken for an inflammatory affection of the organ. The distinction, however, is easy, and of great practical importance. If the disease has recently occurred, it may be distinguished from acute inflammation of the bladder by the absence of pain and of those severe constitutional symptoms which characterize the latter disease. If it has been of very long standing, it may be distinguished from chronic inflamma-

tion of the bladder by the general health suffering but little; whereas, in chronic inflammation, the constitutional powers sooner or later give way."

The points of differential diagnosis in the foregoing quotation we cannot consider as very accurate or conclusive. As to chronic inflammation of the bladder, the feature by which it is distinguished from simple irritability of the organ is by the secretion from the mucous membrane of muco-purulent matter, and in the still more advanced stages by the circumstance, also, of the urine being alkaline. If by the term "inflammation of the bladder," the author means to imply inflammation of the muscular coat only, then the latter symptoms to which we refer will not be present; but we deny that inflammation is ever confined to that structure: we feel confident that the mucous coat is invariably engaged in the inflammatory action, no matter what other coat may be involved, and this Mr. Coulson himself admits, as will be presently seen.

The state of the health can form no uniform guide, for the early stage of chronic inflammation of the bladder, before that period arrives at which the urine assumes a decidedly alkaline character, is, we think, unaccompanied most frequently by any palpable constitutional derangement.

The next subject considered is paralysis of the bladder, into the account of which the author goes at considerable length. We cannot afford space to follow him through his observations upon this disease; but we would advise the reader of the book itself to direct particular attention to this part. The sources of paralysis of the bladder are numerous; and to know its real cause is, with a view towards treatment, most essential, while nothing is often more difficult than to ascertain that cause.

Acute inflammation of the mucous coat of the bladder is one of the most serious affections to which that organ is liable. The intense pain, the great intolerance of the viscus often to hold even an ounce of urine, the depressing influence of the affection not only upon the body but upon the mind, render a case of this affection truly distressing, and stimulate us to exert all our ingenuity to alleviate the sufferer's state. But it is the prospective dangers which attach to this affection that give to it a formidable character. We refer to gangrene and ulceration of the membranes, and extension of inflammation to the kidneys. As long as the ulceration is confined to the mucous membrane, and does not extend to the other structures of the bladder, the case is comparatively free from serious or disagreeable results; but when it reaches so deeply as to pass through the muscular coat, there is danger of extravasation of urine from rupture oc-

curring, or there is the chance of a fistulous communication being established between the bladder and some of the intestines. Mr. Coulson considers that "ulceration between the bladder and rectum is not a very rare occurrence," and he gives two cases in which he had a post mortem opportunity of ascertaining the exact state of the parts. In one there was a communication between the fundus of the bladder and the colon; in the other, the bladder communicated with the rectum, colon, and ileum through the medium of a channel, which was in fact a fœcal abscess.

As to the treatment of this affection, we cannot agree with the author, that, "excepting at its commencement, mercury is not of use in this form of inflammation;" for we have found no remedy so efficient, in what may be termed the subacute stage, as mercury. When it is combined in the form of blue pill with extract of conium, and, accompanied by the application of blisters to the sacrum, is steadily persevered in for some time, the good effects arising from it are often surprising. In the very early stage, when severe pain and distressing irritation of the organ constitute the more prominent and urgent symptoms, local depletion and anodynes should, of course, be the remedies upon which chief reliance must be placed; but immediately upon the abatement of the very acute symptoms, there is no plan we know of better calculated to prevent the inflammation merging, as it is so apt to do, into the chronic form, as the combination above recommended.

Chronic inflammation of the mucous membrane of the bladder is one of the most intractable and unsatisfactory affections we can be called upon to treat. It may be the sequel of the acute form we have just noticed, but most usually it arises slowly as the result of stricture of the urethra, stone in the bladder, or enlargement of the prostate gland. Besides these there are many other exciting causes of this affection. Mr. Coulson observes:—

"There are some habits apparently more predisposed to this affection than others: such are those of irritable scrofulous temperaments, with fair skin, and tendency to cutaneous affections, more especially if accustomed to live freely, or given to venereal excesses, or have suffered from syphilitic affections, or gout. In such individuals, exposure to cold seems the most frequent exciting cause of this affection, and those who actually labour under it generally suffer much more severely in cold weather. Gouty persons are very subject to this affection."

We fully agree with the author in the advantage of injecting acidulated lotions in cystirrhœa, accompanied by phospha-

tic deposit in the urine. We have in some instances employed them with marked benefit; and if only due attention be paid to the accompanying circumstances of the case, and to whatever symptoms of an unfavourable character may result from the adoption of the plan, no mischief need be apprehended from it. We are, however, far from coinciding in the propriety of Professor Lallemand's method of treating chronic inflammation of the mucous membrane of the bladder by the application of the solid nitrate of silver. Such a plan should be strongly condemned as both unscientific and dangerous. In the first place, it would, we think, be physically impossible, be the bladder ever so contracted, to apply the caustic equally over the surface of the membrane, and if the cauterization be limited to certain patches only, we cannot see of what advantage it could be, even allowing that the method was unobjectionable as regards its results. But in the second place, if it were possible to effect a complete cauterization of the membrane, the consequences might be fearful, not only from the extent of surface subjected to the action of the caustic, but from the obvious impossibility of measuring the degree with which it must fall on some parts more than upon others. There is, in fact, no necessity of adopting so imperfect and dangerous a method of applying the nitrate of silver to the interior of the bladder; this end can be much more effectually and safely attained by injecting solutions of that salt, by means of which a uniform action upon the membrane can be insured, and an undue effect be prevented.

We have frequently seen injections of nitrate of silver employed in these cases, and have witnessed the happiest results from their judicious use, even in cases in which pain was a prominent feature. As a general rule it is better to commence with a weak solution, about two grains to the ounce, and to increase gradually until it attain caustic properties; but it will seldom be found necessary to increase the strength of the solution beyond that of a powerful astringent. As to the subject of using injections containing the balsam of copaiba, we can give no opinion, as we have never known the plan to be put in practice, but we have seen excellent effects follow the internal administration of that medicine, particularly when combined with alkalies.

The next subject upon which Mr. Coulson touches is inflammation of the muscular structure of the bladder, by which he understands that the inflamation is confined to *that* part of the organ only. We have already expressed it as our belief that inflammation of the muscular coat is never met with as an

isolated affection—that inflammation of the mucous membrane is always allied with it; and in this view we are borne out by Howship, Boyer, Johnson, and by the author himself. Even Mr. Prout says: "I am quite unacquainted with, and indeed doubt, the existence of the commencement, and particularly the limitation of ordinary inflammation to the muscular structure of this organ."

"Now, the fact I take to be this—inflammation may confine itself to the mucous tunic, or it may limit its action to the peritoneal covering of the bladder; but with respect to the muscular coat of this viscus, I am of opinion that it is seldom, perhaps never, exclusively the seat of inflammation, if we except those cases in which abscesses form between the serous and muscular coverings. Morbid anatomy proves to us that inflammation may arise in this situation, and that the walls of the organ become thickened, and pus is secreted in one or more cysts, which in course of time burst through the mucous membrane and open into the vesical cavity. The muscular structure in these spots is wasted and in great part destroyed, a few stray fibres only being found about the walls of the abscess. But perhaps it would be more correct to regard the areolar tissue, and not the muscular fibres, as the seat of inflammation; in short, to class the affection as we should class an abscess occurring in any other situation."

It is quite unnecessary, however, to discuss the abstract question as to the possibility or impossibility of the limitation of inflammation to the muscular tunic of the organ, since in practice the knowledge of the fact could avail but little. Without denying the possibility or even the probability of inflammation being confined to the coat, it must be admitted that to recognise the affection, when so limited, and to discriminate it from other affections of the organ, would require our powers of diagnosis to be raised to a pitch of refinement which, in the present state of knowledge, they cannot possibly possess.

We are reluctantly compelled to pass by without notice the various subjects of malignant diseases of the bladder: its abnormities, wounds and injuries, and hernia of the organ; but we must proceed to consider the important subject of calculus, with the two operations for its cure, lithotomy and lithotrity. The author treats of this subject under four distinct heads:—1st. The chemistry of urinary concretions; 2nd. The causes of stone; 3rd. The symptoms; and 4th. The operations for the removal of the stone.

Under the first head much valuable information, which is evidently taken from the best sources, will be found condensed.

"The chemical constituents of calculi may be conveniently divided into two classes, the first containing those which sometimes form entire calculi in a nearly pure state; the second those which may be viewed as adventitious constituents, some of which are problematical.

"A.—*Forming entire Calculi or Laminæ.*

1. Uric Acid.
2. Uric or Xanthic Oxide.
3. Urate of Ammonia.
4. Cystic Oxide, or Cystine.
5. Ammoniaco-Magnesian Phosphate.
6. Oxalate of Lime.
7. Phosphate of Lime.
8. Carbonate of Lime.
9. Mixed Phosphate of Lime, and Phosphate of Magnesia and Ammonia.

B.—*Existing in small quantities associated with the preceding.*

10. Urate of Potass.
11. ——— Soda.
12. ——— Lime.
13. ——— Magnesia.
14. Organic matter, fat, extractive albumen, vesical mucus, blood.
15. Carbonate of Magnesia.
16. Silica.
17. Oxide of Iron (?)
18. Benzoate of Ammonia (?)
19. Oxalate of Ammonia (?)
20. Phosphate of Iron (?)
21. Hydrochlorate of Ammonia (?)
22. Urea (?)
23. Clay Mica (??)"

The causes of stone, both the immediate and remote, are, notwithstanding the advancement of physiological science, and the improved state of organic chemistry, still involved in deep obscurity. Could the difficulties in the investigation of its remote origin be cleared away, so that, by examining the chemical product, we should be enabled at once to ascertain the remote cause which gave it birth, and thus to apply our remedies to the "fons et origo mali," our treatment would then, indeed, be based on science, and the advantages arising from it would be inestimable. But how stands our knowledge in this respect now, even when physiology and organic chemistry have acquired so advanced a position? It is true, we can readily recognise the presence, for example, of uric acid or the

triple phosphate in the urine, and can, by the administration of alkalies in the one case and acids in the other, remove the abnormal product: even more, we may know, through physiology, the source of the particular chemical product; but here our knowledge and our therapeutic powers end; we are utterly ignorant of any means by which to influence the excessive production of those chemical substances which are the result of the disintegration of particular tissues. We may know that uric acid, for instance, is the product of the metamorphosis of muscular tissue; but by what means have we it in our power to control the action by which the product is generated in excess? The subject is one of great interest not only in a speculative but in a practical point of view; and not until the line that limits our investigations, and the veil which obscures our views, be removed by the advent of a more enlightened physiology, will our therapeutic capabilities become truly scientific and efficient, or those discrepancies in the doctrines of organic chemists be abolished. Whoever is desirous of learning the views of the best authorities upon this subject will consult the article upon the "causes of stone," in Mr. Coulson's work, with advantage.

The symptoms of stone are, however, much more important for the study of the practical surgeon.

Though the rational symptoms are merely conjectural, still, when well marked, they seldom leave any doubt as to the nature of the diagnosis; but they are subject to so much variation and to so many sources of deception, that nothing but the sensible sign can be considered satisfactory, as it evidently is the only conclusive proof of the presence of a calculus. We have often known the symptoms of pain and irritation to be almost absent, even in cases in which the calculus has not been encysted. The case freest from pain we ever witnessed was one in which, strange to say, the calculus was not only of large size, but was remarkably spiculated, being in that condition which would be supposed to be best calculated to irritate the bladder. Dr. Gross, as the author observes, remarks upon the fact that spiculated calculi often give rise to very little suffering; and he attributes this to the circumstance, that "the spines admit of the more ready passage of the urine, in the same manner that a very rough body, lodged in the bronchial tube, will occasionally cause less distress than a smooth body, as it produces less obstruction to the entrance of the air." The presence of blood in the urine may be due to many causes besides calculus in the bladder.

The sudden stoppage of the urine in its flow is, perhaps, the

most decisive symptom of stone; still it is by no means unequivocal, as the same effect may be produced by a particular condition of the middle lobe of the prostate gland. In fact, all the rational symptoms of stone, both individually and collectively, are open to deception; accordingly, we must rely altogether upon the result of the expedient of "sounding;" it becomes, therefore, a matter of the greatest importance to conduct this test with the greatest accuracy. Mr. Coulson makes many useful and practical observations upon this subject, which may be borne in mind with advantage.

"A hard stone, as the oxalate of lime or the lithic acid calculus, rings when struck, and communicates through the instrument a peculiar sensation. A soft calculus, composed of the phosphates, conveys a more equivocal feeling to the operator; the instrument strikes against a hard unyielding substance, but the sound is less sharp, or almost inaudible. The size may be partly guessed by marking the extent of hard surface over which the sound passes, and the readiness with which the calculus is found in all conditions of the bladder. But considerable experience is requisite to form an accurate opinion upon the subject, unless we choose to introduce the instrument used in lithotrity, in which the amount of separation of the blades is indicated by a graduated scale on the handle. The stone may thus, if requisite, be measured in every direction; but, for my part, I think it, as a general rule, a very unnecessary proceeding, and subject to the risk of breaking the calculus. The larger and harder the stone, the more audible in general the sound communicated by the instrument. It is quite different from the grating sensation indicative of a fasciculated condition of the bladder, and may often be heard at the distance of several yards. The introduction of the finger into the rectum for the purpose of lifting the surface of the bladder behind the prostate, though very often practised, is requisite chiefly in old persons."

As to the circumstance of a stone of large size being present, and still eluding the sound, though managed in the most dexterous and persevering manner, we have met with many such instances. We have recently employed lithotrity successfully in a case in which the difficulty in detecting the calculus was so great, that we laboured under the impression it was one of very small size, until the contrary was proved by actual measurement. In fact, it was hardly ever touched by a sound: the only plan by which we could repeatedly assure ourselves of its presence was by the introduction of a silver catheter, and drawing off the urine as the patient stood—the result being, that as the bladder contracted to expel the last of its contents, the stone was driven against the instrument and thus became evident. In a second case which is at present

under our care, though the calculus is of considerable size, as proved by measurement, it can never be felt until the bladder is injected, or the finger introduced into the rectum, and then the sound employed must be almost straight. In other instances, the stone will be detected better when the bladder is empty.

We fully coincide with the author as to the impropriety of resorting to the supra-pubic operation of lithotomy in almost any case. Calculi of immense size have been removed from the bladder by the lateral operation; and we conceive it would be preferable to drill or crush a large stone, and then withdraw the broken fragments, by opening into the bladder through the perineum, than to resort to the plan of extracting the calculus entire through an opening made above the pubis. With respect to the extent to which the prostate gland should be divided, that comes to be a question altogether of degree. It is true that much danger of extravasation of urine and consequent diffuse inflammation arises from carrying the incision too freely through the gland and along the neck of the bladder; but if the extent of the incision be not fairly proportioned to the size of the stone, so that it can be seized and extracted with ease, the urethra may be torn through in the efforts to divaricate the blades of the forceps, and the delay and the fruitless attempts to accomplish the aim of the operation consequent upon an inadequate incision, must inflict an incalculable amount of mischief. As far as our experience goes, we think that the effects of division of the prostate gland have been somewhat exaggerated; still we are far from inculcating the propriety of cutting one line's breadth beyond what is absolutely requisite in the performance of the operation.

The next subject considered in the work is lithotrity, after the description of which the author contrasts the merits of this operation with those of lithotomy. We regret to find that, in the mention of a number of names in connexion with the subject of lithotrity, that of an Irishman, highly distinguished for his ingenious inventions in this as well as in many other departments of surgical mechanism, has been altogether unnoticed. We allude to Mr. F. L'Estrange, of this city. It may be that Mr. Coulson, in common with most other English authors, is ignorant of the vast improvements which the inventive genius of Mr. L'Estrange effected in lithotritic instruments, when as yet they were clumsy, imperfect, and unscientific; but it is for us to correct whatever erroneous impressions exist, and to guard our countryman from being robbed of or denied, directly or by implication, merits to which he is justly entitled. We can inform Mr. Coulson that the credit of being the first to ap-

ply the principle of the screw, as a means of crushing calculi in the bladder, and of designing a method to remove the detritus, is justly due to Mr. L'Estrange of Dublin. The screw, as at present used, may be the invention of Mr. Weiss, and the slit in the curved portion of the fixed blade of the lithotrite, made with the view of allowing the detritus to escape, was without doubt the design of Mr. Oldham; but the first who applied the principle of a crushing force by means of a screw, and who thought of contriving a method of ridding the instrument of detritus, which he did by means of a wire stillet passed between the blades, was Mr. L'Estrange. Another very ingenious and highly important addition made to these instruments by the same surgeon is that of a latch, which, when connected with the handle of the lithotrite, the screw being revolved a few turns backwards, enables the blades to be readily freed should they become locked or otherwise fixed in the bladder during an operation, as has in some cases occurred. The imperfections of Baron Heurtoloup's instrument must have been evident to all; but it was the quick mechanical perception and ready powers of our countryman that first stripped them of the rudeness of their construction, and of the pain and danger attendant upon their use.

We confess we are not a little surprised at the manner in which the author gives directions for the performance of lithotrity, as far as the manœuvres for catching the stone are concerned. Let him speak for himself.

"The instrument being fairly in the bladder, the next step of the surgeon is to find the stone. The blades of the lithotrite being kept closed, he must first move it in a sweeping direction, with the convexity downwards, from before backwards, along the bas-fond and the posterior surface of the bladder; then he must draw it back, the convexity being turned to the right or to the left. Thirdly, the instrument must be again pushed from before backwards to explore the side which has escaped examination. Fourthly, the point must be directed downwards to the space immediately behind the prostate, and upwards behind the symphisis pubis. The instrument should then be carefully rotated that the point may come in contact with the foreign body."

How different these directions from the simple and gentle plan recommended by Sir Benjamin Brodie, who says, "it is neither necessary nor prudent to explore the bladder with the forceps, with a view to ascertain the exact situation of the calculus in it."

Does Mr. Coulson imagine he has a tough leather pouch to deal with, instead of a delicate, highly sensitive organ, which

is sure to resent the slightest rudeness upon the part of the surgeon? If such be the method of performing lithotrity, no wonder for many, even at the present day, to be prejudiced against the operation.

We have now arrived at the fourth part of the work, in which the author treats of diseases of the prostate gland: acute inflammation of the organ, the chronic enlargement of it, malignant degeneration of its structure, and concretions within its ducts, are considered in consecutive order. The observations, however, upon these several subjects are too short to embody a sufficient amount of information for the student: moreover, we have recently noticed the subject in our review of Mr. Adams' work.

In concluding our notice of Mr. Coulson's fourth edition, we have but to reiterate the opinion enunciated in the review of his third, which was published in the twenty-second volume of our former series, that "it presents a clear, well-arranged, well-selected resumè of the labours of others, interspersed with so much of his own observations and opinions as show him to be practically conversant with the diseases of which he treats," adding, that it is now carefully brought up to the present advanced state of our knowledge on the subject.

Medical Lexicon; a Dictionary of Medical Science, containing a Concise Explanation of the various Subjects and Terms of Physiology, Pathology, Hygiene, Therapeutics, Pharmacology, Obstetrics, Medical Jurisprudence, &c., with the French and other Synonymes. Notices of Climate and of Celebrated Mineral Waters; Formulæ for various Officinal, Empirical, and Dietetic Preparations, &c. By Robley Dunglison, M. D., Professor of Institutes of Medicine, &c., in Jefferson Medical College, Philadelphia, &c. Eighth Edition. Philadelphia: Blanchard and Lea. 1851. 8vo. pp. 927.

We cordially greet the appearance of this new edition—the eighth—of Dr. Dunglison's Medical Lexicon, a miracle of labour and industry in one who has written able and voluminous works on nearly every branch of medical science. There could be no more useful book to the student or practitioner, in the present advancing age, than one in which would be found, in addition to the ordinary meaning and derivation of medical terms—so many of which are of modern introduction—concise descriptions of their explanation and employment; and all this and much more is contained in the volume before us. Differ-

ing completely from Dr. Hooper's Medical Dictionary, it is, as its name indicates, rather a Lexicon, and is therefore almost as indispensable to the other learned professions as to our own: in fact, to all who may have occasion to ascertain the meaning of any word belonging to the many branches of medicine. From a careful examination of the present edition, we can vouch for its accuracy, and for its being brought quite up to the date of publication: the author states in his Preface, that he has added to it about *four thousand* terms which are not to be found in the preceding one.

Lettres sur la Syphilis, à M. le Docteur Amédée Latour, Redacteur en chef de l'Union Médicale. Par M. Ricord. Paris: 1851[a].

As regards the treatment of chancre, M. Ricord first speaks of cauterization, for which he is a most decided advocate; he cannot conceive why those who are armed with the hot iron and caustics against the sting of a viper or the bite of a mad dog, fear the same remedies when they have to deal with the venereal poison. "What results are we to expect from the cauterization of chancres? 1st, The prevention of constitutional infection; 2nd, To hinder the formation of buboes; 3rd, To oppose the progress of the primary sore, of which the consequences are sometimes more or less deformity, or even the loss of some important organ; 4th and last, To destroy the nucleus of contagion." Those who believe that constitutional contamination always precedes the chancre affirm that it is not only useless to cauterize it, but that it is dangerous, as the chancre is an emunctory by which the system throws off the virus. If this opinion had any foundation, it would consequently follow that not only would it be imprudent to destroy a chancre, but that, on the contrary, we should preserve, spread, and multiply it, that we might open to the virus more numerous and more easy gates of egress. "This should be their logic; but we know that these logicians do not so act, and happy is it for their patients that they do not make the conclusion follow their premises."

Nor is the difference great between this school and that which regards chancre as at first a local disease, but upon which secondary symptoms must inevitably follow. These profess that the chancre is the source of the infection, of which the

[a] Continued from vol. xiii. p. 152.

activity is in proportion to the number, extent, and duration of the primary sores. But, they say, do not cure the primary sore too soon; it will be a guide to direct the general treatment, and will oblige the patient to follow the rules laid down. "What are we to think of such precepts? what satisfaction to know, each day, that a poor patient carries about a chancre which will cause the other symptoms you will have to treat at a later period. The primary sore helps, they say, to direct the depurative treatment; but we know it is not a part of their system to suspend the general treatment until the chancre has been healed, even by their method. This treatment is the same in all cases; it is a fixed dose of mercury, administered for a determined time, no matter what may have been the character of the primary affection; no matter what may have been its duration. And then what shall be said of their prudence, to allow a chancre to progress even almost to amputation of the penis, forsooth, that a patient may be induced to follow his prescribed course of treatment? Is not such precaution worthy of admiration!" Cauterization has been accused of being the frequent cause of bubo, and the meagre statistics of Bell have been brought forward to prop up an assertion which a single visit to a venereal hospital would annihilate. On the other hand, the law which can be easily verified is, that there are more buboes where caustics have not been used than where they have. Cauterization does not always prevent the formation of buboes; but it never causes them to be specific; nature may often prevent this. It may, too, prevent constitutional contamination, and never favours it.

M. Ricord is well aware that many cases have been cited to prove the false doctrine which he here endeavours to combat; but they all belong to that class, a specimen of which may be found in Van Swieten, where a patient, affected for more than a month with a primary sore, had it cauterized, and was attacked with secondary ulceration of the throat as a consequence of the pretended repercussion!

Chancre at its commencement is absolutely a local affection, which may remain definitively local. It may undergo a spontaneous cure, or may be cured by local treatment; and it is only after a certain period of duration that it takes on certain forms, which may be more or less troublesome, and which may be productive of immediate or secondary symptoms. "If we destroy chancres at an early period; if we make them abort in the first moments of their existence, from the first to the fourth or fifth day of their appearance,—most undoubtedly we prevent these accidents. If we do not see them in time,

and consequently cannot successfully count on the abortive treatment, cauterization will, however, at least abridge the duration of the primary ulcer, and so important and efficacious are its effects, it should be laid down as a precept, that any erosion after exposure should be instantly cauterized." But to derive the full benefit of cauterization as an abortive and preventive against all ulterior consequences, many conditions are necessary. In the first place, we are not to reckon the age of the chancre from the time when its existence was first perceived by the patient, but from the moment of exposure to contagion. In acting thus, and destroying the chancre before the fifth day, the patient escapes from consecutive symptoms. That we may rely upon cauterization as an abortive, we must not be content with merely touching the ulceration with any description of caustic, but it is necessary that we should find on the separation of the eschar, in place of the virulent ulceration, a simple wound; otherwise our cauterization is of no avail. It is owing to imperfect cauterization, or from its being practised at too late a period, that symptoms supervene which we have no right to impute to it. In fine, if buboes already exist, if the chancre is indurated, if the constitutional affection is established, and, moreover, if secondary symptoms have already existed, it can only serve to modify the primary sore, to hasten the period of reparation, to repress superabundant granulations, to hasten the cicatrization, and shorten the duration of the ulcer. It is more especially in artificial inoculation that we can study the abortive effects of cauterization, and its neutralizing power. "It is also important to be aware that, once a primary sore has been made with an instrument charged with virulent pus, or the morbid poison may have penetrated the tissues by any other means, not only are simple lotions insufficient to prevent contagion, but it cannot be arrested, even by the application upon the contaminated part of any of the different agents which are capable of neutralizing the virus, when mixed with it, before inoculation. These substances can only destroy the *syphilitic seed* when it is out of the soil, before it has been sown, but, once sown, they are impotent to hinder its germination. It is only to cauterization or to excision that this power belongs." Numerous experiments have been made upon the ulcers of artificial inoculations at the moment of their formation, by the application of the plaster of Vigo, as has been recommended in the abortive treatment of small-pox, or with lint spread with strong mercurial ointment, but the inoculated virus progressed all the same; M. Ricord never

could arrest the development of chancre but by the destruction of the contaminated part.

It must also be recollected that, when the pustule is formed or ulceration exists, the virulence is not contained solely in the secreted pus,—that it is not even limited by the diphtheritic layer which covers the chancre; for if the ulcer be washed, the pus that it secretes be removed, even if the pseudo-pyogenic membrane be destroyed, it is reproduced with all its specific power. "There is, then, a certain distance, *a sphere of virulent activity*, whose rays are in proportion to the extent and duration of the ulceration." It is consequently very important in practice that the effects of the caustic should pass beyond the field of specific inflammation which it is wished to destroy. Chancre being surrounded by healthy structures, to what extent, then, should cauterization be applied? The exact dimensions are difficult of definition; but in the author's experience, it should be double the extent of the ulceration, and penetrate through the thickness of all the tissues. It can easily be understood, "that the extent of certain ulcerations and their particular seat do not always allow of the practice of this rule; hence we often fail; moreover, if we use the nitrate of silver, whose action is very superficial, and is, therefore, only applicable to recent and superficial cases." The Vienna paste, M. Ricord says, is the best caustic, and with it he has never failed in destroying the pustule of inoculation from the first to the fifth or the sixth day. A single application is sufficient; and almost always it forms a dry eschar, which is detached gradually from a cicatrix which forms beneath. If the eschar fall too soon, or is thrown off by suppuration, a simple ulcer results. "The arsenical paste has also afforded satisfactory results; but it should be employed in a positive manner, that is, "allopathically," as it has failed when used "homœopathically." The actual cautery is, perhaps, the best, were it not for the dread with which it inspires patients, and were we reckless in the use of chloroform.

Our author, in consequence of the good results which, both in Belgium and England, have followed the application of the solidified nitric acid, is at present trying its effects not only in phagedænic chancres, but in those of the simplest form, with the intention of causing them to abort; and, from a great number of cases in which he has had perfect success, he concludes that by it we can neutralize the poison without being obliged to destroy so great a quantity of tissue as with other caustics: its action, however, is very painful—the pain remains for a longer time than after the use of the Vienna paste; and we are ge-

nerally obliged to make many applications at intervals of two or three days, especially if the ulcer be of some extent. In fine, no matter what caustic be employed, we must repeat its application as often as the fall of the eschar exposes an ulcer with the uneven surface-bottom of progression; at a later period we should employ a caustic of a mild nature, with the sole intention of hastening the cicatrization. Hunter, who was a partisan for the use of caustic, also recommended excision; and M. Ricord is of opinion that we should always excise the nymphæ when too prominent, if they are the seat of primary ulceration; —likewise, if a long prepuce is the seat of the disease, and the diseased part can be entirely removed, it should be excised. Should the seat of the chancre, however, not allow a sufficient portion beyond the diseased structure to be removed, recourse should be had to the cautery.

Cautery and excision are both useless in the case of indurated chancre; and even excisions performed at the earliest period of specific induration have never hindered constitutional contamination. In all cases, no matter what means may have been employed for the destruction of a chancre, we should never neglect to pay attention to any other symptoms which may present themselves.

M. Ricord next proceeds to the consideration of buboes, first denying their existence as a primary symptom. "Can bubo, regarded as a venereal symptom, be developed without any other symptom having preceded it? Can it be the first consequence of contagion from an impure connexion? This opinion, which had its origin in the times of mystery, upon what is it based? What proves the truth of it? Analyze what has been written on it, and you will find false analogies, errors in diagnosis, ignorance of the laws of evolution, and their possible consequences." Contact, provided that it was a suspicious one, has been given as its cause, no attention being paid to the greater or less space of time which elapsed before the appearance of the bubo. If the simple contact of virulent matter upon undenuded surfaces can occasion a bubo, without giving rise to any previous symptom, primary bubo, admitted by its advocates as of rare occurrence, should, on the contrary, be most frequent; for the cases in which non-excoriated parts come into contact with diseased surfaces are sufficiently numerous. It has been urged that other substances can enter the economy without abrasion of the surface. "But if mercury does so, will caustic potash? Who has ever seen contamination from a dead body without abrasion? Who has ever seen the saliva from a mad dog so act—or the venom of the viper? Who has ever

seen bubo follow small-pox or cow-pock, where their specific pustules had not been present? Let us not plead with false analogies. If certain causes have a special manner of action, we do not say all must act in the same manner. It is thus they are distinguished; and syphilis, also, has its specific mode of action. It does not penetrate without lesion of surface.

"Writers, who admit the existence of primary bubo, say they have met them in patients who suffered neither from blennorhagia nor chancre; they have all observed some cases. Bell has seen perhaps twenty, when he ought to have seen hundreds, had they any real existence. Lagneau, in imitation of those who have preceded him, gives some observations upon them, and adds that examples of them are always to be found in the hospital for Venereals. No doubt, because there are always at this hospital a number of patients pretending to have primary bubo.

"It is curious that in the history of primary buboes, their advocates have never cited an example of their being found in any other region than that of the inguino-crural, with the exception of Dr. Schals, who mistook an enlarged gland in the axilla, consequent upon a whitlow, for a bubo arising from the absorption of blennorrhagic vapours, through a recent cicatrix upon the finger. Nor have we any mention of submaxillary buboes arising from impure kissing! No symptoms, in fine, have been given whereby a primary may be diagnosed from a secondary bubo."

Having denied the existence of primary bubo, M. Ricord proceeds to explain what he understands by a venereal bubo. In the widest acceptatation of the word, venereal symptoms, virulent or not virulent, chancre or blennorhagia, may give rise to sympathetic buboes, which sympathetic buboes are essentially inflammatory in their nature, and ordinarily attack only a single superficial gland. They are, in general, obedient to antiphlogistic treatment; and in the cases in which they suppurate, they never furnish an inoculable pus. They alone accompany a blennorrhagia when the blennorrhagia is not itself sympathetic of a urethral chancre. "So that it may be laid down as an axiom, *that a blennorrhagia which in its course has never furnished inoculable pus, never gives rise to a virulent bubo.*"

But those sympathetic—those inflammatory buboes, which so many causes may give rise to, such as cauterization improperly used, or any other irritant, do not consequently constitute a special symptom. The venereal disease is not the cause, and they are only complications of it. The specific buboes, distinct from other glandular swellings, can only arise from

virulent venereal affections—from true syphilis. They are the consequence or result of constitutional infection, and constitute two classes perfectly distinct, and very important to be recognised. The former contains two varieties almost always confounded with each other by most writers on syphilis. First, mediate or consecutive bubo which follows upon unindurated chancre and its different phagedænic varieties. This form of bubo, the result of absorption, is not pernicious to the constitution. Every unindurated chancre does not indubitably give rise to it, and it may even be said that there are more unindurated chancres in which bubo does not appear than otherwise. These buboes are the terminations of the *direct* lymphatics, whose orifices or extremities are bathed in the pus of the chancre, either at the opposite or on the same side, when these vessels cross the median line. This relation of the lymphatics is requisite, and when it does not exist, there is no bubo. This will explain their frequent attendance upon chancre of the frenum, and the total exemption from them of even numerous inoculations made upon the upper part of the thigh.

The bubo attendant upon unindurated chancre not only never precedes it—*a circumstance which ought often, or at least sometimes to occur, if it could be developed without the existence of chancre*—but appears ordinarily after the first, or in the course of the second week; and in certain circumstances, at a much later period, even after months or years, provided the primary ulceration still preserves its specific character. Such was the case in a patient of our author's colleague, M. Puche, in whom it made its appearance after three years of serpigenous ulceration. The law being that it is only when the ulceration, sooner or later, encounters the peculiar relation of parts, or when they have not been destroyed by its progress, that the virulent pus passes into the lymphatic vessels, which carries it direct to the glands, without being themselves infected, or causing infection in its transit. "In non-indurated chancre, be it apparent or concealed in the urethra, in the anus, in the vagina, or in the mouth, the bubo affects, in general, only a single gland, if there be but one chancre, and it is the superficial glands which are attacked; but this division of superficial aud deep-seated is by no means applicable to virulent buboes. Bubo from virulent absorption, symptomatic of non-indurated chancre, is inflammatory, and in general very acute; it mostly suppurates."

Whether virulent pus furnished by a chancre at the specific period is arrested in a lymphatic, or arrives at a gland, it constitutes a species of inoculation, which, in consequence of cer-

tain dispositions, may give rise to symptoms analogous to those from which it has emanated; that is to say, to chancres of the lymphatics or the glands, with a tendency to enlarge and suppurate. But in this *intra-lymphatic* inoculation by absorption, if it may be so expressed, there occurs, as in inoculations of the skin and the mucous membranes, a *common* inflammation of the neighbouring parts; and whilst the lymphatics and the contaminated glands run their course to specific suppuration, the surrounding parts furnish simple pus only. "These two layers—so distinct, and at first so independant of each other, so easy to be comprehended—have not always been recognised; they have different properties, as has been explained, and thus it can be understood why the Culleriers, both uncle and nephew, maintained that the pus of buboes was not inoculable. In short, if on the day a bubo is opened, in which the pus has not been allowed to remain too long, that which escapes first be employed for inoculation,—that is to say, the pus of the phlegmonous layer,—the result will be negative; whilst, if the matter be taken from the deeper layer, viz. the virulent pus furnished by the glands, the result is positive." M. Ricord has met with cases in which the infected glands formed a sort of virulent cyst, dissected and exposed by the phlegmonous suppuration. The pus surrounding these cysts might be inoculated without any result, whilst if the pus contained in them was employed, the result was specific action. When a virulent bubo is opened at a late period, the pus of the gland is effused amongst the phlegmonous pus, and having had time to become mixed with it, just as if it had been open for a long period, the pus which it furnishes is inoculable.

Hunter has already stated that the virulent pus of a bubo, caused by absorption, is identical with the pus of chancre, and is inoculable like it; and that the bubo, in such cases, is a glandular chancre, contagious in the same degree as any other chancre.

"But it is a curious fact, that virulent *primary* pus is not met with beyond the first glands in direct connexion with the chancres, which have been the cause of their contamination,—never in the deep glands, in the lymphatics which spring from them, or in their branches. There is a barrier that the primary pus has never passed. It is experiment, it is artificial inoculation that has taught this, not now displeasing to those who heretofore so calumniated it. Again, where there is any possibility of doubt, that it is the pus from the bottom of the abscess which causes the specific ulceration of the lips of the opening of the bubo, whether natural or artificial, the negative effect of inocu-

lation of matter from phlegmonous and scrofulous buboes, and the *positive result from virulent bubo alone*, will furnish an incontestible pathognomonic sign."

The second variety of *mediate* or consecutive bubo is that which succeeds to indurated chancre. This form of symptomatic swelling of the glands merits the greatest attention, and should be studied with care. It differs as much from the preceding variety as does indurated chancre itself from all other forms of primary ulcer. The swelling of the glands is here generally observed sooner, perhaps, than that which succeeds to non-indurated chancre. It is rare that it is not witnessed in the first week; and we may safely say, that its appearance is seldom delayed beyond the second. If it has not been more frequently met with, the reason is, that we were ignorant of its situation. Where we have indurated chancre, we have it inevitably followed by bubo, and it does not occur at a late period, as is the case in the course of other primary symptoms. M. Ricord has never seen chancre attended with the *specific* induration without there being symptomatic enlargement of the neighbouring glands. So regularly does this take place, and therefore so characteristic is enlargement of the glands, that it serves to point out the nature of the chancre by which the patient was attacked, even after its disappearance, or when it may be concealed in some deep region, or even when its base has been less distinctly *marked* than usual. For those who are well acquainted with this form of bubo, the seat of the primary symptom, a sort of forced entry of constitutional syphilis, is always easy to find, provided it is looked for in time; for it is chancre alone which of all other symptoms gives rise to it. "We can easily convince ourselves of this truth by the inspection of patients who are labouring under secondary symptoms, and who have that variety of glandular swelling in the neighbourhood of the primary sore. We can even by its presence recognise certain transformations *in situ*, unravel in a certain degree certain secondary symptoms, and find their true point of origin, as happens in some cases of papules or mucous tubercle reputed primary, and which have only succeeded to the place of a chancre. We may then affirm, that it is from want of a power of due appreciation, or a want of rigorous analysis, and from not having seen the disease at the commencement, or from being deceived by simple coincidences, that it could be believed that mucous tubercle, a secondary symptom, could have given rise to enlargement of the neighbouring glands. We may easily assure ourselves, that whenever this symptom, and all other secondary symptoms, develop themselves upon

many regions of the body at the same time, that it is only where chancre had existed that we shall find the glandular enlargement about to be described."

Acute, virulent, symptomatic bubo of non-indurated chancre may be attended with or preceded by an inflammation of the lymphatics. In the bubo of indurated chancre, the lymphatics are hard, indolent, and sometimes knotted in the situation of the valves: they can be easily raised up and circumscribed when those situated upon the dorsal aspect of the penis are affected.

On the corona glandis, under the *preputial conjunctiva*, we find flexible, winding cords; and if the semi-mucous membrane be ever so little stretched over them, it is pale, and the cords remain white, which is not the case when they are inflamed. This state of the lymphatics, consequent upon indurated chancre, may be confounded with other affections of the same vessels, if we had not the indurated chancre from whence the diseased vessels spring, and the affected glands in which they terminate, to help our diagnosis. Moreover, in this affection of the lymphatics, the neighbouring skin remains unchanged in colour, and is frequently œdematous; but this variety of œdema is, in some degree, gelatiniform, and pressure with the finger makes no impression on it. The glands, as in the other varieties, become swollen more frequently on the side corresponding to the chancre than on the other; but the opposite side is also often affected. In either case it rarely occurs that only a single gland is diseased. In the great majority of cases many suffer. If not an absolute, this is, at least, a very general rule.

At first there is but a slight *indolent* stiffness, which almost always escapes the observation of the patient, and even of the surgeon. It rarely happens except in those of a decided lymphatic temperament, or of strumous constitution, that the swelling ever surpasses the size of a hazel nut or walnut, unless in cases where inflammation, dependent on a totally different cause to that of indurated chancre, has been superadded; the glands remain indolent, hard, and resisting, giving to the touch, as near as possible, the same sensation as that produced by the specific hardness of chancre. They do not become confounded with one another to form a single mass, as happens in strumous swelling of the glands, for the surrounding arcolar tissue does not, in general, become affected; they are, therefore, in general, moveable upon their base, and moveable under the skin, to which they do not adhere, and which is changed neither in colour nor temperature. In fat persons, more especially women, they are concealed in the adipose tissue; and they must

be sought for with care. These buboes almost always, but slowly, terminate in resolution, which is complete, and frequently does not occur for a long time after the disappearance of the chancre which called them into existence. Sometimes the glands as well as the lymphatics remain hypertrophied for an indefinite length of time. They are rarely the seat of active inflammation, and when they are, it is determined by other causes besides their specific one. If the buboes consequent upon indurated chancre suppurate, which seldom occurs, they never furnish *pus of a specific character.* This fact has often been witnessed by Dr. Thiery, of Brussels, as well as by our author. It is *simple pus* which they furnish, if it is not pus of a secondary symptom; but in all cases it is not inoculable; we must not, however, allow ourselves to be deceived by fresh chancres, which a patient may contract upon former indurations, and which then follow the laws of non-indurated chancre, and give rise to virulent buboes, secreting inoculable pus. Chancres on a *borrowed* induration are of frequent occurrence.

"Indolent bubo, which has here been described as the consequence of the *specific induration* of an indurated chancre, is already a symptom of secondary transition, of which a more complete continuation is found in the constitutional buboes, properly so called, or in the enlargement of the posterior cervical glands, constituting the second species of syphilitic bubo, which will be spoken of further on."

M. Ricord next lays down the two following propositions, which, he thinks, more than twenty years' experience enables him to do:—

"1st. Every bubo which suppurates specifically—that is to say, which furnishes inoculable pus—is never followed by secondary constitutional contamination, a sign of more value than the absence of induration in chancre which has preceded, and which may deceive.

"2nd. Multiple indolent bubo, consequent upon indurated chancre, is a further and sometimes the sole proof of constitutional infection, when we have not an opportunity of witnessing the induration of the chancre."

These propositions being laid down and admitted, let us consider their effects upon the therapeutics of syphilis. "In the first place, we can no longer admit but one mode of treatment in venereal bubo, for, as we have just seen, venereal bubo does not constitute a pathological individuality: would that it did, and that its differences consisted chiefly only in its greater or less depth, or in its greater or less acuteness. We cannot, as in the time of Bell, without attention to their *point*

de départ, or their particular nature, have the pretension to say that we are able, without chance of failure, to prevent the suppuration of buboes, or cause it at pleasure. These day-dreams of the older writers on syphilis have vanished; at present no one believes that he can cause to pass, by the same lymphatic vessel which has allowed the passage of the virus, just sufficient mercurial ointment to neutralize it in the glands, and arrest its effects. We too well know that a mercurial preparation placed in direct contact with virulent pus, upon primary venereal ulcers, or upon the chancrous ulcers of buboes, not only does not always neutralize the specific morbid secretion, but that often, on the contrary, it increases much their activity. If we can in the great majority of cases hinder the suppuration of sympathetic buboes, by the methodic employment of compression and resolvents, we fail in the bubo of absorption, which is attendant on non-indurated chancre; and no matter what means we employ, we can never cause suppuration to take place in the *specific* virulent bubo, symptomatic of indurated chancre. It is from a want of knowledge in being able to determine the different species, that we have deceived ourselves, and believed in results which we thought would inevitably follow."

If leeches be employed in the cases in which buboes follow upon non-virulent venereal symptoms,—upon blennorrhagia, for example,—we may apply them in the advanced stages without giving ourselves much uneasiness whether their bites are at a greater or less distance from the centre of inflammation. But on the contrary, when the bubo is virulent—that is, when it has followed upon a non-indurated chancre, and that the rational diagnosis permits us to allow the existence of a virulent bubo,—if we have it still in our power to combat the inflammation by leeches, we should concentrate them upon the most inflamed point; for if suppuration takes place, and if the abscess open or is opened, each leech-bite which has not been cicatrized becomes inoculated by the contact of the pus. Our author has frequently witnessed this; and we have ourselves, not long since, seen (in the case of a young girl suffering from chancre) the bites of ten leeches, which were applied for the relief of piles, changed into so many chancres. As to the opening of suppurating buboes when they are not virulent, whether one or more punctures are made, a speedy cure most frequently occurs, which is to be attributed rather to the nature of the disease than the operation. But in cases of bubo, the matter of which is of a specific nature, be there one or many openings, the pus which passes through these inoculates

their edges, and soon transforms them into chancres, which spreading, run one into the other and speedily destroy the skin covering the abscess. When the abscess is small, but a single puncture or incision is necessary; when the skin is still thick, and the abscess very large, we may resort to many punctures; but if the parts are much undermined, and the skin thinned and deteriorated, the Vienna paste carefully applied causes a more rapid cure by destroying, within proper limits, those parts which ulceration would effect more slowly. But in all cases in which we have to treat a virulent bubo, it is better to open it too soon than too late.

Buboes symptomatic of indurated chancre, concerning which many give themselves much useless trouble, and which, unless in cases where the complications demand a particular treatment, such as antiphlogistic, where inflammation happens to be present,—or anti-strumous, when they occur in a scrofulous constitution,—leave us almost nothing to do locally, the anti-syphilitic general mercurial treatment being the essential, we might say, the sole means for their cure. Whether the mercury is introduced into the system by the digestive apparatus, or by the skin, it acts efficaciously against this kind of bubo. "We would not, however, exclude the utility of frictions over the parts, the employment of resolvent plasters, and the good effects arising from compression."

M. Ricord has frequently affirmed, but again wishes to reiterate, that general syphilitic poisoning, constitutional syphilis, or the syphilitic diathesis, whichever term may be used, cannot exist but as the consequence of chancre, no matter where it may have been situated, or of hereditary descent. "*There is no constitutional syphilis without chancre, or without the father or mother having suffered from chancre.* This is a truth more consoling than the doctrine which makes of syphilis an invincible enemy of the human race, present everywhere, and everywhere invisible: like the lion in the Scriptures, perpetually on the watch—*quærens quem devoret.*"

Does chancre always cause general contamination of the system? If it does not always do so, what are the circumstances under which it does—and what then happens? These are questions, did space permit, we would wish to answer *in extenso.* "In the first place, chancre is the sole symptom produced by inoculable pus—the only one which all inoculators have produced. We may be certain that nature acts not otherwise than art. Chancre is then the first symptom which follows contagion, and consequently the primary symptom. The true non-indurated chancre, without affection of the glands, or

without bubo *attended with specific suppuration*, never contaminates the constitution. The propositions are absolute; but in order to establish them there must be a rigorous diagnosis. There are, then, chancres, and perhaps they are the most numerous, which do not infect the constitution, and which in general can be recognised."

It has been asked, how can a poison or a virus be placed in contact with the circulation without the circulation becoming contaminated? Do we not, on the contrary, see that this poisoning is effected from a point in the economy contaminated? Those who reason thus forget the numerous cases in which inoculation of small-pox fails; those in which it is impossible to vaccinate; those numerous cases in which malignant pustule and carbuncle have been only local, or destroyed when they were formed. Why, then, should not syphilis, already less active, enjoy the same privilege? It has been before stated that constitutional infection is neither dependent on the locality, number, extent, or absolute duration of chancre, and that it only takes place under certain circumstances, which we shall endeavour to point out.

First, then, as to the time which separates the constitutional symptoms from the *implantation* of the virus, or from the appearance of the primary symptom. What interval is there between the chancre and the first appearance of secondary symptoms?

"Whatever be the mechanism by which infection takes place: by traversing at first the lymphatics, or acting immediately upon the blood; is the virus a ferment which finds a fermentable matter from which results a new toxic agent that loses the power of being inoculated; or is the poisoning of the constitution otherwise effected; it is impossible to lay down with accuracy the exact time of their appearance. Here, again, we meet with great laxity of opinion, which allows the appearance of secondary symptoms from some weeks after contagion to an indeterminate number of years—from fifteen days to thirty years and upwards. It is assuredly certain, that, if we do not know how to recognise the symptoms reputed primary; if we cannot discern that which ought to produce infection; and that we consider constitutional syphilis, in all cases, as the consequence of all that may have preceded: as the sum or as the result of all the blennorrhagias, of all the ulcerations, of all the glandular swellings which may have existed anteriorly, no matter at what distance of time the one from the other, we shall arrive at the same results as the author of the *Traité des Syphilides*, who, rejecting every primary sore, admits finally too

much and more than is requisite; finding the origin of a constitutional syphilis to have been five or six blennorrhagias, often as many chancres and buboes, with years of interval, so that the infection may have commenced thirty years before, and successive additions afforded the sufficient quantities necessary for its action.

But let us return to that which, as M. Ricord observes, clinical experience so uniformly teaches, and which he engages to verify to the incredulous. Let us see what takes place after a chancre has been duly diagnosed, and flanked, to use the author's expression, by its glandular Pleiades. When no specific treatment has been employed, and when the disease has been left to its natural course, "*six months never elapse without syphilitic poisoning manifesting itself.*"

This is an universal law, which there is no means of eluding but by means of treatment. M. Puche is of the same opinion, and has verified it by hundreds of observations, without ever having found an exceptional case. "Six months! yes, and even six months is a very long period, for most frequently secondary symptoms make their appearance from the fourth to the sixth week; frequently in the second or third month, and rarely in the fifth or sixth month. It is a truth which cannot be too often repeated, and the results of which follow as certainly as those of Galileo."

In some works on general pathology, constitutional syphilis is not looked upon as giving rise to a peculiar diathesis; and yet is there any other disease in which there is a diathesis better marked? where peculiar symptoms appear, re-appear, and are so infallibly transmitted by hereditary descent.

"More ignorant than Thierry de Hery, forgetful of the precepts of the judicious Fernel, and deaf to the voice of Hunter, some in the present day maintain that syphilis is vagrant and without order. Syphilis, so systematic, so symmetrical, so regular, that M. Andral has said that it might in some degree serve as the key to all pathology. But to understand and appreciate this order, the disease must be observed in a *state of nature*, without artificial influence, and without therapeutic modifications. Thus, we see the symptoms which follow in succession, and which differ, according to the period of their appearance, the longer or shorter time from infection, by their seat, their number, often by their arrangement, their form, their duration, their termination, their influence upon generation and progeny, and in fine, by their greater or less obedience to such or such medicine, or specific, if you prefer the phrase. Syphilis may be compared to a ribbon which is un-

rolled more or less quickly, but the tints of which change after a certain number of turns, *the free end* of which, therefore, which is held by the person who has, so to say, communicated the disease, no longer resembles the other extremity which is adhering to the bobbin, or, if you like it better, to the skeleton of the affected individual."

These shades—often so well marked, so defined, so exact in their succession—can never be expressed by the term acute or chronic stage, for each may be acute or chronic without changing in any degree the other characters upon which its classification is based. Syphilis, on the whole, is more chronic the longer it lasts; this is a truth which requires no demonstration; but the absolute duration of the disease is not the sole cause of the difference of seat and form of the symptoms to which it gives rise; thus, the roseola which, in certain individuals, is an acute symptom, may re-appear many times in the course of the first and second year after infection, and sometimes even later, whilst the affections of the osseous system, that the same individuals would range amongst the chronic symptoms, may show themselves, in some cases, in the first five or six months of the constitutional contamination.

M. Ricord here makes a digression in order to criticise the memoir of M. Waller, of Prague, which has been recently published on "the inoculation of secondary symptoms," but which our limited space forbids to follow; we shall, therefore, proceed with him to continue the inquiry into the symptoms of constitutional syphilis, having observed, that when no treatment had been employed against chancre, symptoms manifest themselves within a given time, and after a certain order, which admit of classification. What Hunter justly calls a syphilitic disposition, that is to say, a *diathesis*, must be considered as being established; and from that moment symptoms capable of affecting different parts and different tissues of the body, appear with greater or less rapidity, and advance more or less quickly. During a period which may be regarded as that of incubation, more or less well-marked disturbances of the blood may often be recognised—more especially a diminution in the red globules, constituting the chloro-anemia which accompanies secondary symptoms, properly so called, and which is often exceedingly well marked. At this period also, and frequently before the appearance of any other symptom, and as a primary consequence, disturbed vision, muscular debility, neuralgic pains in the head, and *rheumatoïd* pains of the extremities, occur. These secondary pains may also appear at a later period, together with other secondary symptoms; recurring

alone or with them, but must not be confounded with a different class of pains, which occur at a still later period. They are not necessarily present in all cases, and their general character is that of being intermittent and *nocturnal*, increased by heat, particularly that of the bed. Thus, patients who turn night into day, and *vice versâ*, invert the order of access of those pains. They do not regularly return each time to the same part, and during the period of intermission no pain is caused by pressure on the part that was affected. Some patients often experience ease during their moments of greatest suffering, by exposing the surface to the action of cold, and by making pressure. Motion also rather eases these pains; and they are seated principally in the neighbourhood of the joints, and sometimes in the dorso-lumbar region; the skin over the affected parts is not changed either in colour or as regards temperature, neither is there any tumefaction. These pains generally disappear when a cutaneous eruption makes its appearance.

At this time there is present almost constantly a swelling of the glands which truly deserves the name of secondary buboes. This affection of the lymphatic ganglions, at the secondary period, merits peculiar attention. It is in some degree characteristic of it; and is also one of the first proofs of constitutional infection. It sometimes makes its appearance in the third week, but more frequently about the sixth, and is a pathognomonic sign of indurated chancre. It has a peculiar predilection for the posterior cervical or cervico-cephalic region; and is less frequently found affecting other parts; but if it should do so, we must be upon our guard not to confound other affections of the glands with it, more particularly that arising from primary symptoms, which may have their seat in unusual situations.

True secondary affections of the glands seldom acquire a considerable size, are indolent, and many are affected at the same time; they never suppurate, at least not *specifically*, and never furnish pus which gives results by inoculation.

M. Ricord has met with this affection of the posterior cervical, occipital, and mastoidean ganglionic glands, without the slightest trace of eruption on the scalp. M. Puche, of the hospital *du Midi*, has also witnessed similar cases, and we ourselves can bear testimony to the truth of the observation.

This affection of the glands is seldom found accompanying the later secondary symptoms, and is not an attendant on tertiary symptoms, unless they may have been previously in existence.

At the commencement of an attack of constitutional syphilis,

we often meet with a symptom which those who have only had their information from books look upon as indicative of an old and inveterate disease, viz. alopecia; but which is one of the earliest of its signs, and sometimes even the first, and is not found at a more advanced period, unless it be confounded with baldness arising from other causes. With regard to the skin and mucous membrane, and their dependencies, even those who will not allow of distinct phases yet agree that when the symptoms have followed at an early period on contagion, the affections are superficial, generally disseminated, and more or less confluent. "If you follow the evolution of syphilis, the facility for so doing being, alas! too common at the present time, you will see with what regularity and with what constancy they present themselves within the desired period, in the form of exanthematous, rubeolic, or erythematous eruptions. So constant is their occurrence that Puche and Cullerier the younger, think that they are never absent. There is no doubt that they are almost always discovered when they are sought for at a proper *period*, and not allowed to pass unobserved, for they are only recognisable by the eye; but these primary eruptions are followed, earlier or later, by papules, spots more or less elevated, and squamæ, and by vesicles, vesico-pustules, and pustules more or less superficial, whose suppurative forms are not recognised by the same characters through all epochs of syphilis, when properly traced to their true *point de départ*, be it chancre causing constitutional contamination, or hereditary taint. As regards mucous membranes, and the regions of the skin where they are passing into mucous membranes, or are easily susceptible of passing from one to the other, the same observations hold good; here there is first but simple alteration of colour, but from the structure and the peculiar functions of these parts, papular spots sooner make their appearance, and advance more rapidly to make way for mucous papules or tubercles, upon which so many hypotheses have been built, and which still are the cause of so much discussion; but those symptoms, about which so little is known, and whose particular appearance is due to so many accessary circumstances, both as regards texture, seat, and functions, do not make their appearance at all periods of syphilis, no more than does roseolous rash. Now when you have taken the pains to make a differential diagnosis, and that by a deplorable confusion of language you do not confound *syphilitic tubercles* with the papules or mucous spots, which may be more or less salient or tuberiform, you will not find these symptoms as the first manifestation of a syphilis con-

tracted ten or twenty years before, and which had not been subjected to treatment."

In proportion as the constitutional affection grows older, the symptoms which it produces tend to become more and more grave, and attack more deeply-seated parts; but as a sort of compensation the parts attacked are less numerous. It engages the entire substance of the skin and the areolar tissue beneath it, and even seems to have a peculiar predilection for certain regions: for example, in the mouth, the substance of the tongue and soft palate. On the *first* appearance of secondary symptoms, it is the internal surface of the lips and of the cheeks and the tonsils that are attacked; whilst at a later period the parts behind the pillars are engaged, and great destruction to the pharynx is caused. These latter symptoms do not appear for five or six months, at least, after contagion. In like manner, disease does not attack the testicles, the fibrous and the osseous systems, the muscles, and other deeper situated organs, as the heart, brain, lungs, and liver, until a much later period.

When the periosteum and the bones become affected, pain precedes and accompanies the attack; these pains are true osteocopic, and are easily confounded by negligent observers with those of the second period, although as distinct as any two things can be. They affect the superficial and compact structure of bone, occur at night, and are exasperated by heat, especially that of the bed; they are increased by pressure both during the paroxysm and its diurnal intermission. In fine, there exists at the seat of pain a swelling of the bone and periosteum.

Observation, then, teaches that syphilis, left to itself, tends to give rise more or less frequently, and after a longer or shorter lapse of time, to symptoms in certain determined regions, and in certain forms, constituting, in some degree, distinct diseases, but bound together by a common cause, and succeeding each other often by gradual transitions; but also, sometimes, as if by sudden outbreaks well defined one from each other. "We can then admit, with Thierry de Hery, Hunter, and others, three well-characterized stages of syphilis.

"1st. Chancre, or primary symptom, the immediate result of contagion; an acknowledged source of a virus capable of being reproduced, persisting in the state of a local symptom upon the skin or mucous membranes within certain limits, having power of extension to neighbouring ganglionic glands to give rise to bubo only: in fine, being capable of causing constitutional contamination.

"2nd. Secondary symptoms, resulting from that infection

or poisoning of the constitution, and making its first appearance in the course of the following six months, having for its seat the skin, and the mucous membranes and their appendages; with symptoms supposed to be contagious without a rigorous demonstration, which cannot be reproduced by artificial inoculation, but are transmissible, by hereditary descent, either individually from the father or the mother, or from both together.

"3rd. Tertiary symptoms, rarely making their appearance for the first time before six months, their seat being in the subcutaneous or sub-mucous areolar tissue, in the fibrous, osseous, and muscular structures, in certain organs, as the testicles, heart, brain, lungs, liver, &c. Not only are their morbid secretions not contagious by ordinary contact or by inoculation, but their specific influence by hereditary descent is always decreasing; so that finally they become but a hereditary cause of scrofula.

"These facts, although displeasing to those who have a horror of precision of language as applied to the exact sciences, are truths which may be easily verified; and there is no apparent departure from this order, unless it is interfered with by therapeutics."

We have now seen how superficial and diffuse secondary symptoms are at their commencement, and how they become more serious, deeper seated, and more grave in their nature as they grow older. Their course, however, is subject to disturbances almost always foreign to the nature of the disease, being the result of accidental causes, and most generally of treatment. "Syphilis, however, is without doubt one of those maladies over which art can exercise a considerable power. Many credulous practitioners, who have but little experience, even believe, as do the vulgar, that medicine ought always to be entirely successful; and that where the disease resists, increases, or re-appears while being treated, the blame should be thrown upon the physician and not upon the remedy: indeed, it has been lately asserted in one of the journals, with the greatest coolness, that syphilis cannot resist 110 of Dupuytren's pills! yes, 110 pills. Alas, what gasconade!"

Constitutional syphilis is undoubtedly one of the greatest calamities to which the human race is subject. Happily, notwithstanding its frequency, it is relatively small when compared with the numbers who expose themselves to contamination. This *inaptitude* exists in certain idiosyncracies; and observation has taught the author, that in general the system is not capable of being affected a second time by constitutional syphilis; and that patients are not apt twice to contract indurated chancres, to be followed by constitutional symptoms. "Since syphilis

can be transmitted by hereditary contamination, from parents to their offspring, may we not be permitted to believe that an inaptitude acquired by the parents may also be transmitted to the child?"

It is in consequence of this opinion, the truth and justice of which, M. Ricord says, each day verifies, that it has been and is sought to impress upon the economy a disposition equivalent to that caused by cow-pock, or a first inoculation of small-pox.

M. Auzias Turenne believes that individuals may be rendered insensible to the direct and immediate action of virulent matter, and the contagion of chancre be prevented. His experiments on animals led him to this conclusion, from observing, where many successive inoculations were performed, the effects of the later were progressively less and less marked, and of shorter duration, and finally that no result could be produced. He considers this to depend on a modification imprinted on the economy by a sort of infiltration of the syphilitic virus, producing what he calls syphilism or syphilisation, being to syphilis what vaccination is to small-pox—that is to say, that it hinders or prevents for the future the development of primary sores, without there being even a possibility of the syphilitic diathesis, as understood by M. Ricord, or constitutional symptoms being caused. These experiments were performed on apes. But the experimentalist, seeking to apply the law to the human species, believes that he has seen certain persons who became insensible to the power of chancre after they had undergone a certain number of contaminations. But he does not tell us how many he counted. "His examples, we believe," says M. Ricord, "have been selected from public prostitutes grown old in debauchery, and who finally are less frequently attacked than those commencing their career. All who expose themselves to the infection of chancre do not contract disease."

Most observers have seen that in persons who have frequently suffered from chancre at various periods, the last chancre is of a more serious character than the first, and those numerous non-indurated chancres which had existed from time to time did not hinder that last contracted from becoming indurated and infecting the system, and this infection even not preventing a fresh chancre from being contracted, which, however, did not become indurated, though it was often of a severer character than any which had preceded it.

M. Ricord says, that there may be always seen at the Hôpital du Midi, chancres spreading continuously, by phagedænic ulceration, by true successive inoculations, especially in

the serpigenous form, where they destroy the surface to a considerable extent, amputate the penis, burrow in the groin, and destroy the skin of the abdomen from one iliac region to the other. In fine, these chancres having run their course, having attained these dimensions, which are not even their extreme limits, have existed for months, nay, even for years, capable of furnishing pus whose inoculation will be attended with as serious results as it would have been at the commencement. And yet, here the number of accidental and successive ulcerations, their extent and their duration, would seem to be equivalent to what is accomplished in those inoculations called preventive, and which have been repeated at short intervals and in *the same* region. It is true that in the one case nature or the disease acts *without preventive intention*, a difference perhaps from well-intentioned art.

"In conclusion, what is to be thought of a preventive means, attended, too, with many dangers, employed to remove the susceptibility of contracting chancre,—a result which must not of necessity, as in the case of small pox, happen any one, and requires that the contagion be communicated at first from twenty-four to sixty-four times,—without our even knowing how long this dear-bought indemnity may last. M. Puche performed seven successive inoculations on the same individual, and the results of the last were as active as those of the first."

The following letter, the thirty-third of the series, contains a letter from M. Auzias Turenne, accusing Ricord of not fairly representing, and of misapprehending his views, and the reply of our author thereto; but the extended space which we have already devoted to an exposition of his views warns us to draw to a conclusion.

The best means of preventing constitutional contamination, then, according to our author, is to destroy as soon as possible the primary symptom; "but if we do not see the disease until it is too late to have hopes in the abortive treatment, should we have immediate recourse to general specific treatment? Decidedly not. The chancre which infects the constitution is that most rarely met with; from all others, no matter what may be the number, the duration, or the repetition of the primary symptom, constitutional contamination does not take place, and specific treatment then is not only unnecessary but may be injurious."

Some, convinced with M. Ricord that the majority of primary symptoms heal both quickly and well by attention to hygienic rules and simple treatment, wish that we should wait

before having recourse to an energetic and specific treatment for the proofs of constitutional contamination, and that special treatment should be commenced only when secondary symptoms make their appearance; others, who recognise the necessity of a special treatment, when the chancre presents the characteristic appearances he has so much dwelt upon, do not wish, nevertheless, to prescribe it until the symptoms of general contamination show themselves, not only to demonstrate the actual necessity of it, but especially to prove to their patients that the treatment must be long and continuous. M. Ricord, however, recommends that from the moment we have to deal with a chancre which we know will infect the constitution, recourse should be had to specific, that is to say, to mercurial treatment.

"The mercurial treatment," he says, "can hinder the appearance of constitutional symptoms, or simply retard them for a time difficult to limit, as it varies from months to years. Most practitioners must have seen patients who, after having been treated specifically, have enjoyed during ten, fifteen, twenty, thirty years all the privileges of excellent health, and who finally have presented, either for the first time or as a relapse, symptoms characteristic of syphilis. In presence of facts of this kind, unfortunately so numerous, how can we but admit the persistence of the diathesis compatible with apparent good health; how can we in all cases conclude in an absolute destruction of the acquired syphilitic disposition, as some speculators have so lightly done?

"That which would give us the certainty that the diathesis can be destroyed by a proper course of treatment, that which, moreover, ought not to be impossible, would be observations well authenticated, well detailed, well analysed, of individuals having had indurated chancres twice or oftener, and having presented each time the series of constitutional symptoms in the natural order with which we are now acquainted."

To continue specific treatment only until the symptoms disappear is the method by which we may be almost sure of their return. To insist upon the continuance of the treatment for as long a time after the disappearance of the symptoms as it took to overcome them, does not conduct to happier results; for in some cases it would be too long and in others not sufficient. Again, salivation as a gauge of treatment presents still greater inconveniences, and less of a guarantee than the other methods.

"Six months of treatment, by a daily dose which produces an influence upon the symptoms that are to be overcome, and

which indicates, by known physiological effects, after they have disappeared, that the medicine acts still, constitutes at the present time the rational treatment with which most practitioners are content, and which seems to give a promise of cure most likely to be permanent."

But whether we administer mercury solely for the primary, or have recourse to it against secondary symptoms, the treatment, as has been already said, may derange the time of their appearance and the natural order of the symptoms. More powerful against secondary than tertiary accidents, mercury sometimes hinders the appearance of the former, whilst it is powerless over the development of the latter. It is thus that, after a chancre treated by mercury, the first constitutional disturbance may manifest itself in an exostosis, forming, for some who only know how to count upon their fingers, a secondary symptom out of a tertiary, as if its nature could be thus alone decided: in the same manner, and under the same influence of treatment, secondary symptoms may appear after tertiary, but this, far from being from a want of order, is only the effect of art, and shows its power. When the disease is left to itself this never happens. M. Ricord's colleague, M. Cullerier, believes the order of their appearance to be so inevitably regular, that treatment can in nowise interrupt it; and such, indeed, is the opinion to which we are inclined to subscribe, from having often witnessed the appearance of the secondary symptoms to be so slight that, if we had not been on the watch for them, they might have been overlooked, or been mistaken for some other affection. Indeed, such we have known to be the case where slight feverish symptoms only were present, and where the appearances upon the skin consisted solely in a slight exanthematous redness, and the swelling of the cervical glands served to confirm the opinion in others, that they were unconnected with syphilis, whilst to us they were truly pathognomonic of the contamination of the system. This, however, is not the opinion of M. Ricord. The manner, then, in which he regards the evolution of syphilis to take place, and the methodical classification of the symptoms which he has traced, has enabled him to have recourse to a rational treatment of syphilis, and to administer mercury solely where it is useful. At one time this remedy was too much neglected by one set of practitioners, whilst another was too prodigal in its use.

The iodide of potassium, when at first recommended as a medicine in the general treatment of syphilis, and which then gave therapeutic results so uncertain, sometimes so contradictory, or at least so little satisfactory, has been, as the result of

his clinical observations, reserved more especially for the series of accidents which he has denominated *tertiary*, upon which they have an especial and powerful action. In this view we fully concur; and we have used this medicine in combination with opium most successfully in the deeper seated affections of the skin and subcutaneous tissue—more especially in that form of the disease which appears as a subcutaneous tubercle, and which is followed by extensive sloughing; never shall we forget the satisfaction which it gave us in the case of an emaciated female, in whom one of these tubercles had caused extensive destructive sloughing and ulceration in the thigh, and in whom another similar tubercle was commencing in the orbit, threatening the destruction of the eye; but which readily yielded to its administration.

The following is M. Ricord's *resumé* of his treatment:—

"1st. The abortive treatment should be applied to a chancre as soon as possible.

"2nd. Mercurial treatment should be used only in cases of indurated chancre and secondary symptoms.

"3rd. Iodide of potassium in tertiary symptoms.

"4th. A mixed treatment, both by mercury and by the iodide of potassium, in cases where secondary symptoms are late in making their appearance; or when tertiary symptoms exist at the same time."

With all deference to so high an authority, we must disagree with M. Ricord as to using mercury and iodide of potassium at the same time. Many, we are aware, do so at present, but our experience leads us to recommend that where iodide of potassium is requisite, it should be used alone, or in combination with iron, as the cases which require the employment of this medicine are generally in a chloro-anemic state; having by their combined use given tone to the constitution, we can then, if necessary, have recourse to mercury.

We part here from M. Ricord with regret; his carefully conducted inquiries have effected much in the improvement of our knowledge as to the nature and treatment of one of the scourges of mankind, and we rejoice to know that he still sedulously devotes his original mind and admittedly great talents to the further development of the pathology of syphilis.

On Rupture of the Perineum, and its Treatment. By Isaac Baker Brown, F.R.C.S. London: Churchill. 1852. 8vo, pp. 30.

The chief object of the author in this pamphlet is to urge the more frequent application of surgical treatment for the cure of extensive lacerations of the perineum. The operation recommended by Mr. Brown differs in one particular from that usually practised in these cases: in every instance, before putting in the sutures, he divides the sphincter ani muscle. This division should not be at its insertion, but through the belly of the muscle, about one-third from the os coccygis. Mr. Brown dwells strongly on the importance of this preliminary, and considers that much of the subsequent success of the operation rests upon it. Mr. Copeland and Mr. Bransby Cooper, he says, recommended this many years ago as an important step in the procedure. The author relates two cases where the plan of treatment described proved completely successful, although the perineum was destroyed throughout its entire length. In the management of the patient subsequently to the operation, the frequent periodic use of the catheter, and the liberal administration of opium, so as to keep the bowels quiet for the first few days, are very properly regarded as essential conditions.

The great objection to all these operations on the perineum is the danger of rupture from future labours, and we cannot consider this objection to be set aside so "happily" as Mr. Brown supposes. The actual propriety of such a curative measure is, in point of fact, the first question to be decided in a large class of these pitiable cases; and we think the author would have materially advanced the object in view had he prefaced his remarks with a satisfactory solution of it. Of the two patients whose histories he gives, one was the mother of nine children, and forty years of age; the other had given birth to six children, and was thirty-seven years old. When he wrote his paper, sufficient time had not elapsed to test the efficacy of his operation by the result of another delivery. Where the contingency of a subsequent labour is totally precluded, there can be no doubt of the propriety of an attempt to better the patient's condition, and the suggestions and rules pointed out by Mr. Brown then deserve attentive consideration.

On the Fallacies of Homœopathy, and the imperfect Statistical Inquiries on which the Results of that Practice are estimated. By C. H. F. ROUTH, M.D., M.R.C.S., Physician to the St. Pancras Royal General Dispensary; one of the Secretaries of the Medical Society of London; Corresponding Member to the Royal Academy of Surgery of Madrid, &c. &c. London: Lewis. 1852. 8vo, pp. 86.

THE name of Dr. Routh is already well known to the profession. Junior in standing, but advanced in observation and philosophical experience, he has, in the pamphlet before us, taken up the subject of homœopathy in a calm and reasoning spirit, which in our opinion the subject scarcely merits; but as our author observes—

"All doctrines are founded on truth, or what is supposed to be truth. The way to disprove a doctrine is, therefore, not by assailing it as ridiculous or absurd,—a conviction of error can only follow when the foundations upon which it is based are shown to be untenable."

The homœopaths cannot certainly say of Dr. Routh that he treats them slightingly or discourteously; and perhaps on this account the crushing of their fallacies is the more complete. Dr. Routh considers homœopathy in three views:—1st. In regard to its great principle of *similia similibus curantur*. 2nd. In regard to the influence of mind and of regimen. 3rd. In regard to practice or experience.

In regard to the first view, Dr. Routh fully admits, in common with the well informed of the profession, that the principle is true of some medicines: but combats, and very properly, the fallacy of deducing from this that it is of universal application:—

"It is notorious that, in some instances, particular individuals are peculiarly influenced by ipecacuanha, so that a grain, or much less, will, if sprinkled through the air, bring about the most violent symptoms of catarrh; and yet it is not logical to conclude that, in *all* cases an infinitesimal dose of ipecacuanha will cure, or greatly meliorate, the symptoms of catarrh."

"Certain peculiar eruptions which occur after taking mercury have been described as produced by it, and which closely resemble those against which mercury is a specific. Here, then, are instances of the occasional truth of the law. But numerous instances could be mentioned of the contrary. Gallic acid and turpentine exert a specific influence in cases of hemorrhage. Can these medicines produce hemorrhage? Turpentine and the oil of male fern are specifics in many cases of tape-worm. Would a healthy person, taking turpentine continually, have tape-worm?"

Dr. Routh in a single line answers the anticipated objection of the homœopaths who would say in reply to the above passage—"If they should produce respectively hemorrhage and tape-worm, &c., this would be *isopathy*, not homœopathy." His reply is, "Do they produce anything *like* a tape-worm—any *animal* like it?"

The remarks on the absurdities of the infinitesimal dose are well worth perusal, exposing as they do the combined folly and roguery of this system.

Under the second head Dr. Routh gives some very interesting facts of the influence of mind in the cure of diseases principally nervous,—to the uninformed appearing most violent and dangerous to life, therefore most likely to produce a great sensation among the unprofessional part of the community: such cases, treated by globules, are always the great support of homœopathy. For these we must refer to the pamphlet itself. When on this part of the subject, Dr. Routh very judiciously goes into the question of the effects of homœopathy on inferior animals; for on these alone can its merits be tested apart from mental influence.

"Through the kindness of an amateur, my attention has been directed to some cases of cure, or *pretended cures*, of animals by homœopathic medicines. First, a statement made by Dr. Gross, in Stapf's Archives Homœopathiques, who maintains that one of his friends, a veterinary surgeon, cured by ten doses of phosphorus, No. 4, at intervals of five days between each dose, a *fungus hematodes* of the size of a child's head, upon the hinder parts of a horse; a form of cancer well known to be most rapid in its course, and least susceptible of cure: and, he adds, the same gentleman had always succeeded in curing those malignant colics in horses which had hitherto been considered fatal, by aconite, colocynth, sulphur, or arsenic. Few medical men would, I think, be disposed to believe these statements. But, admitting they should be true, it is extraordinary that these experiments have not been confirmed by subsequent experience."

Dr. Routh devotes a chapter to hospital statistics. Of all the sources of fallacy we believe ordinary hospital statistics to be the greatest; indeed, we would go so far as to say that statistics in medicine are worth nothing unless where worked up by one physician thoroughly anxious to estimate the respective merits of different modes of treatment, and honestly bringing together, for the purposes of trial, cases agreeing in kind and in intensity. Nothing is more easy than for the medical officer to bring down his mortality, if he be so disposed, to almost *nil*—he has only to confound together all mild and

severe cases of the same disease; to decline receiving very bad cases, as hopeless; and to suggest to friends to remove dying patients; and he will show a very trifling mortality compared with the honest hospital physician who takes all cases as they come.

"The secret of Dr. Fleischmann's great seeming success *lies in the fact of the admissions and dismissions being entirely uncontrolled, and there being no check on the diagnosis.* Indeed, to say the least, it requires a man to be very conscientious to decide impartially where a case is cured or only convalescent, and to admit none but the worst cases, more especially when the maintenance of the hospital depends on the returns of mortality attaining a cypher which shall be considered favourable by the Government."

Dr. Routh's observations on hospital statistics are most important and comprehensive. We should spoil them by any short extract, and we have not space to insert them in full; but no one who takes an interest in this important subject should omit their perusal. His analysis of the homœopathic returns in reference to particular diseases, as pneumonia, pleuritis, peritonitis, &c., is ably, and must have been most laboriously, worked; it will not bear contraction. The author finally winds up with the following conclusions, to which the impartial reader will give his full assent:—

"In the homœopathic cures effected, globulism is absolutely for nothing, and the practitioner who would attribute such cures to globulism must be considered as either full of simplicity, or a friend to quackery; but that they are due—

"1. To the influence of the mind on the body, through the voluntary or emotional systems.

"2. To the *vis medicatrix naturæ.*

"3. To excellent dietetic regimen.

"4. To allopathic treatment surreptitiously conjoined.

"And secondly,—

"1. That in many cases the homœopaths are inexact and inaccurate in their diagnosis.

"2. That, therefore, their statistical returns are, in many cases, falsified.

"3. That they allow nothing for the different and varied circumstances under which different patients are placed, as type, comfort, locality, idiosyncracy, &c.

"4. That, therefore, their comparisons with allopathic practice are unfair and not to be depended upon."

Dr. Routh has chosen for himself the highest walk of professional literature; he will command success, for he labours to deserve it, and we hope we shall often meet him in the progress of our editorial labours.

1. *Descriptive and Illustrated Catalogue of the Histological Series contained in the Museum of the Royal College of Surgeons of England.* Vol. I. Elementary Tissues of Vegetables and Animals. London : Richard and J. E. Taylor. 1850. 4to, pp. 305, with 18 plates.

2. *Handbuch der Allgemeinen und Speciellen Gewebelehre des Menschlichen Körpers für Aertze und Studirende.* Von Dr. J. Gerlach. Mainz: Verlag von Edward Tanitsch. 1850.

Handbook of General and Special Histology of the Human Body, for Practitioners and Students. By J. Gerlach. Mayence: Edward Tanitsch. 1850. 8vo, pp. 500, with 162 woodcuts.

3. *Mikroskopische Anatomie oder Gewebelehre des Menschen.* Von Dr. A. Kölliker, Professor der Anatomie und Physiologie in Würtzburg. Zweiter Band: Specielle Gewebelehre. Erste Halfte: Von der Haut, den Muskeln, Knochen, und Nerven. Leipzig: Verlag von Wilhelm Engelman. 1850. Zweite Halfte: 1. Abtheilung. Von den Verdauungs—und Respirationsorganen. Leipzig. 1852.

Microscopic Anatomy or Histology of Man. By Dr. A. Kölliker, Professor of Anatomy and Physiology in Wurtzburg. Second Volume: Special Histology. First Half: The Skin, Muscles, Bones, and Nerves. 1850. 8vo, pp. 554. Second Half—First Division: The Digestive and Respiratory Organs. Leipzig: William Engelman. 1852. 8vo, pp. 346, with numerous woodcuts.

4. C. Canstatt's *Jahresbericht über die Fortschritte der Gesammten Medicin in allen Ländern im Jahre*, 1850. Redigirt von Dr. Eisenmann. Erlangen, 1851.

C. Canstatt's *Annual Report on the Contributions to General Medicine in all Countries. For the year* 1850. Edited by Dr. Eisenmann. Erlangen, 1851.

5. *Zeitschrift für Rationelle Medicin.* Herausgegeben von Dr. J. Henle und Dr. C. Pfeufer, Professoren der Medicin an der Universität zu Heidelberg. Neue Folge. 1 Band; 1 Heft. Heidelberg: C. F. Winter. 1851.

Journal of Rational Medicine. Edited by Dr. J. Henle and Dr. C. Pfeufer, Professors of Medicine in the University of Heidelberg. New Series. Vol. I., Part 1. 1851.

6. *Denkschriften der Kaiserlichen Akademie der Wissenchaften.* Erster Band. *Und Tafeln zu den Denkschriften*, &c. Erste Abtheilung.

Transactions of the Royal Academy of Sciences of Vienna. One volume, imp. 4to, and a volume of Plates. Vienna. 1850.

7. *Anormal Nutrition in Articular Cartilages, with Experimental Researches on the Lower Animals.* By P. Redfern, M. D., &c. Edinburgh: Sutherland & Knox. 1850. 8vo, pp. 86.

8. *Pathologische Histologie.* Von Dr. Gottlieb Gluge, Professor der Physiologie und Pathologischen Anatomie an der Universität zu Brüssel, &c. Mit 12 Kupfertafeln und Tabellen. Jena: F. Mauke. 1850.

Pathological Histology. By Dr. Gottlieb Gluge, Professor of Physiology and Pathological Anatomy in the University of Brussels. Jena: F. Mauke. 1850. Folio, pp. 77, with 12 Copperplates, and Tables.

9. *Traité Pratique des Maladies Cancéreuses et des Affections Curables Confondues avec le Cancer.* Par H. Lebert, Docteur en Médecine, Chevalier de la Légion d'Honneur, &c. Paris: J. B. Baillere. 1851. 8vo, pp. 892.

In no department of science do we find that research is being prosecuted by contemporary labourers with more energy and zeal, or with more successful results, than in that which may be included under the general term of micrology. The list of authors and works before us is but a selection of some of the more important contributions to this department of literature with which the British and Continental press has presented us in profusion within the last two years. So great indeed has been the activity of publication in the field of micrologic investigation, that, as it would be wholly beyond the limits of our Journal to present our readers with a *resumé* of all that has appeared in the pages of the numerous periodical and occasional works, we are obliged to confine ourselves to a brief outline of the more important results at which the chief observers have arrived.

As we survey the labours of the various British and Continental schools, and glance at the contributions to histological science which pour in from all quarters, we still remark with regret the absence of researches emanating from Irish physicians; and though indications are not wanting to show that efforts are at length being made to supply this great deficiency, we cannot congratulate ourselves that any exer-

tions commensurate with the vast importance of the subject, and our long-continued neglect of it, have been undertaken by any of our medical institutions, whether universities or colleges, whose status and authority could not fail to have a decided influence in stimulating the energies of the junior members of the profession, if the path of research were indicated to them, and encouragement held out to those willing to devote themselves to this special branch of study. To these institutions are committed the scientific interests of our school; they possess scientific and literary functions and duties, as well as corporate. Have they neglected their stewardship? However this question be answered, it cannot be unknown to the readers of this Journal, that we have on several occasions forcibly called attention to the anomalous position of our school with regard to a subject now engrossing so much attention in all the cities of Europe. We have endeavoured to keep our readers *au courant* with the most recent advances in normal and pathological histology; and we have repeatedly pointed out our own backward condition in this department of medicine.

As an example of what efforts have been elsewhere made to promote and encourage the prosecution of micrologic investigations, we may quote the following passages from the Preface of the Histological Catalogue of the London College of Surgeons:—

"The Council of the College of Surgeons, sensible of the advantages which have been derived, and are likely to accrue from the employment of the microscope in the study of anatomy, physiology, and pathology, have formed, under the name of the Histological Series of the Museum, a collection of preparations of the elementary tissues, both healthy and morbid, of animals and vegetables, adapted to illustrate the results and uses of microscopical investigation.

"The Council deem it worthy of notice, in connexion with the manifold obligations which science owes to John Hunter, that the nucleus of this series, consisting of 150 specimens prepared by William Hewson, constitutes an original portion of the Hunterian collection. But it was in the year 1841 that the Council were first enabled to prosecute effectually the design which they had conceived of aiding and encouraging the use of the microscope; and with this view they purchased the collection of the late Dr. Todd of Brighton, consisting of 1558 specimens of comparative anatomy, natural history, and pathology. Having thus far succeeded in securing the foundation of the histological series which they proposed, they next obtained, by purchase, in the year 1846, 2500 specimens of the elementary tissues of plants and animals, prepared by Mr. Quekett, previously to his appointment as the Assistant Conservator. In the ensuing year Mr. Quekett commenced the arrangement of the new

series, with a view to its explanation and description, and in order to supply the want which had become apparent in the progress of his work, of systematic continuity and scientific completeness, adequate to the contemplated purposes of the collection, his labours were directed to this scarcely less than indispensable aim, and their result was the addition to the collection of 1280 specimens.

"The Council desire also to acknowledge the liberality of various donors, whose valuable contributions have further enriched this department of the Museum; and they have the satisfaction of announcing that the histological department now contains no less than 6838 preparations, forming a collection calculated to meet the most pressing needs of the student of microscopical anatomy.

"The Council, in pursuance of their plan of providing the main requisites for instruction in this branch of scientific inquiry, and having had the good fortune to secure the services of Mr. Quekett, whose eminent ability in microscopical researches is universally acknowledged, had the satisfaction of appointing him, in the year 1844, to deliver annually a course of demonstrations, with a view to the exhibition and connected description of the collection, and to the explanation of the method and resources of microscopical study."

With such substantial encouragement, and under the auspices of such an institution, we cannot wonder that micrology has long held a high position in the London school, especially when we consider that other educational establishments, though their efforts have not been made on such an extensive scale, have done much to foster this department of study. Thus, in the chief hospitals and schools of the English metropolis, we find that the microscope is an inseparable attendant in all clinical and anatomical investigations, where it can be employed with utility. To all who are in any way familiar with the present position of medical research, it is needless to point out the fact that in all the medical schools of Europe of any repute, the claims of the microscope have been long fully recognised. Its utility in anatomical, pathological, and clinical studies has been long since most indisputably established, and put entirely beyond all question or cavil; it is now ranked amongst the indispensable means of prosecuting investigations into healthy and diseased structures. Those who may doubt these statements will only convict themselves of a wilful ignorance, worthy alike of pity and contempt. The proof of the correctness of our assertion lies within the reach of all who will take the trouble to examine the periodical literature of the day, whether British or Continental. For our own part, we have, as far as in us lay, done that which we considered to be a duty that we owed to the scientific interests of our school. We have repeatedly urged the claims of the microscope, we have called

the attention of the leading and influential bodies of the profession in Ireland to our backward condition with regard to this department of study, and we have pressed upon them to take some steps to meet the requirements of modern scientific anatomy and pathology, knowing full well that combined action, and the influence of position and authority, would in a short period effect what could otherwise not be accomplished by years of unaided private exertion.

The histological catalogue of the London College will be found very valuable to the practical micrologist. The volume contains the description of 404 specimens of vegetable elementary tissues, and of 762 of those of animals. It is illustrated by eighteen plates, giving representations of more than 400 of the preparations described. To the student of minute anatomy these figures will be eminently useful. We shall not allude to them in detail at present, but in the progress of our examination of the labours of the other histologists whose works will come under review, we shall take occasion to illustrate and elucidate certain disputed points, by reference to Mr. Quekett's researches. We shall consider the contributions to histology under the two great heads of Normal and Pathological, and these again under certain subdivisions.

Normal Histogenesis.—On the subject of normal histogenesis, or that process by which organized amorphous fluids are transformed into tissues possessing definite morphic properties, no researches of a more recent date than those which were noticed in our last number[a], have met our eye. Under the head of general histology (allgemeine gewebelehre) will be found in Dr. Gerlach's work a brief but satisfactory *resumé* of the condition of our knowledge of the various forms of cells, of the elements of lymph, chyle, blood, pigment, epithelium, and the elastic, fatty, and areolar tissues.

Much obscurity still rests on the origin of the blood-cell, and many conflicting opinions as to its manner of formation are entertained. Thus, by some it is stated to be a metamorphosis of the embryonal cell; by others, the colourless corpuscle is said to give origin to the red; while again the separate and independent growth of both these elements in an amorphous blastema is maintained by some physiologists. We shall not now enter on the discussion of these various views, which will be found briefly but clearly stated in Dr. Gerlach's book: we prefer to wait for the appearance of the first volume of Kölliker's work, when we will consider the subject in *extenso*.

[a] See Dr. Lyons' Report on the "Tissu Cellulaire Artificiel" of Melsens, p. 237 of our present volume.

Much attention has of late been directed to the spleen, an organ exerting considerable influence in the process of sanguification, but very opposite views are entertained as to the part played by it. Thus Kölliker and Ecker advocate a retrograde metamorphosis of the blood in its passage through the organ; while Gerlach maintains, as the result of his investigations, that a new formation of blood-cells takes place in the spleen. We shall not at present enter further into this controversy, which in no small degree now engages the investigators of the German school, each side of the question, as usual, being supported by no mean authorities. As all observed facts, however, must be considered of importance, we shall make a brief extract from the memoir of Dr. Otto Funke, who has communicated to the Zeitschrift für Rationelle Medicin a series of observations on the blood of the splenic vein, an investigation to which he was led, as he states, by seeing that the principal portion of the attention of all inquirers was directed to the arterial supply and the parenchymatous tissues of this organ. His researches were made on the blood of seven horses, of which four were in good health, and three laboured under glanders. A drop of the blood of the splenic vein being placed under the microscope, without the addition of any other fluid, exhibited the following appearances:—The coloured blood-cells were for the most part heaped together in irregular, thick masses, containing, some from six to twelve blood-cells, others a very much larger quantity. Oblong spaces were formed by these masses, which inclosed certain other morphologic elements. This cohesive property of the blood-cells was lessened somewhat when the fluid had been allowed to stand some days. The number of the colourless cells was very great, in some instances being one-fourth, or even one-third of the entire blood corpuscles. Heaps of from thirty to forty colourless cells were to be seen held together by a pale granular mass. A third description of element was also found in some quantity, namely, granular cells, which were either isolated, or collected into groups of three or four. Their enveloping membrane could be readily seen, and was separated by a free circular space from the central heap of granules. This cell membrane was spherical, transparent, and sharp in outline; it included a varying number of granules, which were strongly refractive, of dark outline, grouped in different ways, and varying in number from four to ten. These cells, as the author remarks, are similar to those found in the Malpighian vesicles by Ecker, who states them to have a diameter of 0.020^{mm}. In no instance has Funke met with the pigment granule containing cell, described and figured by

Kölliker and Ecker. The next element noticed by Funke is the *blood-corpuscle-containing-cell.* He states that, after the examination of more than one hundred specimens, conducted with the greatest accuracy, he only found one instance of this cell. In the blood circulating in the spleen he has observed them in abundance, and from their comparatively rare occurrence in the blood after it leaves the organ, he was led to the belief that, whether they are to be regarded as conditions of origin or of annihilation of the blood corpuscle, we must consider them as having fulfilled their destination within the parenchyma of the spleen, subsequent to which they disappear; were this not the case, we should find them in the portal blood, but neither Lehmann nor former observers have noticed them in this situation. Ecker has seen them occasionally in the splenic venous blood, but by no means constantly. Another element observed by Funke was large oblong or oval bodies, of sharp outline, and regularly granulated surface. The size of these bodies varies a good deal, some were so large as to occupy nearly one-half the field of the microscope. On their exact nature he has not arrived at any precise opinion; their regular form, which is not changed by compression, and their sharp outline, imply a cellular structure. He has found them in fresh blood—a proof that they cannot be the result of a commencing decomposition. By the addition of acetic acid to a drop of splenic venous blood, the following changes were observed:—The red blood corpuscles were for the most part rapidly dissolved, without any nucleus being left: a certain proportion of them resisted the action of the acid: the insoluble corpuscles were observed to be those which were smallest and least intensely coloured. Gerlach has made similar observations. The colourless corpuscles were rendered entirely hyaline by the same re-agent; the cell membrane resisted solution for a very considerable period. The nucleus, now rendered visible, was in most of the cells spherical, or elliptical and eccentric; but a few showed double or treble nuclei.

The most remarkable of all the phenomena observed is that which resulted from the action of water, one which, as the author remarks, would be sooner expected in any other animal fluid than in fresh blood, namely, "*the crystalization of the blood of the splenic vein, in the strict sense of the term.*"

A drop of the blood of the splenic vein being placed on a slide and flattened out, and water being added, if the borders of the heaps of blood-cells be watched, they will be observed to change suddenly: thus while some of the corpuscles disappear, others acquire a dark, thick border, become angular

and lengthened, and extend themselves into small sharply-marked bars. In this manner is formed an enormous number of embryo-crystals; these extend more and more in length, while their transverse diameter remains unchanged, or but slightly increased. The entire field becomes soon filled with a thick network of crystals, crossing each other in all directions, and so rapid is their formation, that one is scarcely able to follow with the eye a crystal from its first appearance to its complete development. At the moment of crystalization indications of its occurrence may be observed by the naked eye, without the aid of the microscope, the dark-red colour of the mass of blood being changed into a clear brick red. The crystals, when collected together, presented an intensely red colour. Besides the crystals now described, a second kind was produced by the same treatment, distinguished from the first by marked difference of form. Along the borders of the glass, and in the same drops of blood which gave the needle-shaped crystals, a mass of rhomboid tables was developed, often of extremely large size, so as nearly to cover half the field. These crystals shot forth usually in the homogeneous watery-blood solution, in which no red corpuscles remained visible. The single tables were of various dimensions, the most of them being very regular in form; they presented acute and obtuse angles, and the mean of several measurements, with Schmidt's goniometer, gave 120° for the obtuse, and 60° for the acute angles, in which they differ remarkably from cholesterine tables, with which, at first sight, they might be readily confounded. Some four-sided prisms were also observed, but in small quantity. It was found that alcohol and ether likewise induced these singular forms of blood crystalization. The author was unable to produce crystalization in the blood of any other vessel; and we have ourselves experimented with alcohol and water on some specimens of blood, without meeting any crystaline forms. Lehmann has, however, in one instance, noticed crystalization in portal blood, on the addition of water, which Funke is disposed to attribute to the intermixture of the blood of the splenic vein with that in the vena porta. Funke has observed these crystals in blood taken fresh from the splenic vein of a dog, also in carp and other fish. His investigations into their chemical constitution are as yet incomplete; his opinion, however, is that they are due to some highly crystalizable condition of the hematosine of the splenic blood—a supposition which, we make no doubt, is correct. We are already in possession of some facts with regard to the crystalization of this substance to which it may be as well to make a passing reference at present, if only

for the purpose of grouping together what is known on the subject.

Virchow has called attention to certain crystals which he denominates hematoid; they are to be found in all situations in which masses of extravasated blood are undergoing a process of change as in apoplectic clots; and they were long ago described by Sir E. Home as occurring in thrombus. There is, at all events, reason to believe that it requires a stasis of blood for a certain period (undetermined as yet) to insure their formation. We have ourselves met with them in fluid drawn from a tumour of considerable size, occupying the anterior portion of the shoulder and part of the thorax. This fluid is of a dark-brown tint, coagulable by heat, which caused it to lose a great portion of its colour, and under the microscope numbers of these peculiar rhomboid crystals were to be observed. Again, in some specimens of blood, we may observe granular non-crystaline bodies, varying in size from that of a minute molecule to that of three, four, or even more red blood corpuscles aggregated together. These bodies present usually an intense red colour, and most probably are a variety of hematosine. We have thus three varieties of this substance occurring extra-corpuscular and in a solid form, namely, the granular non-crystaline; the rhombic prisms (Home and Virchow); the acicular, and those in rhombic plates (Funke); the last, as we have seen, having a special locus of development in the blood of the splenic vein[a].

We have yet much to learn on this subject, before we can arrive at any precise conclusions as to the physiological indications furnished by this remarkable condition of the blood after its passage through the spleen.

Taking the portions of Professor Kölliker's work now before us as a specimen, we may confidently anticipate that, when the first and subsequent volumes shall be issued, we shall be in possession of a very complete system of microscopic anatomy. The portion actually published does not complete the second volume; yet we find an aggregate of no less than 900 pages devoted to the minute anatomy of the skin, the muscles, the bones, the nerves, the digestive and respiratory systems, all most ably treated, and leaving little to be desired whether for lucid description or excellent illustration by woodcuts.

Of course, much of a systematic treatise like the present is

[a] See Dr. Otto Funke Ueber das Milzvenenblut (mit Taf. i.): Zeitschrift für Rationelle Medicin, Neue Folge, 1 Band, 1 Heft. 1851, p. 172. See also Dr. Sanderson's paper "On the Metamorphosis of Coloured Blood Corpuscles," in the second volume of the Monthly Journal of Medical Science for 1851.

necessarily taken up with descriptions and details of structure already perfectly familiar to all well-informed inquirers in this department: we have, therefore, only to remark, with regard to such portions, that the method and arrangement will be found clear and satisfactory, the descriptions complete, and the evidences of bibliographical research, and acquaintance with the investigations of contemporary labourers, most creditable to the author. Indeed, we may remark, *en passant*, that it is only in extremely rare instances that any omissions or deficiencies in this respect can be brought to the charge of writers of the German school. Professor Kölliker is long known as a most industrious and successful micrologist, and we find almost every section enriched with the results of his own investigations; and we shall take occasion in the course of our review to call attention to the more important subjects which his labours have elucidated.

The first section is devoted to the anatomy of the skin; we would recommend it to the careful study of all who purpose employing the microscope in the investigation of diseased structures, no class of which is capable of presenting so many embarrassing and difficult points as those which take their origin in affections of the integument and its appendages. It would appear almost superfluous to say that, without a certain preliminary amount of tolerably accurate acquaintance with the healthy structures, it would be useless to commence the study of disease. But in the department of histology, at all events, no error is more common, or leads to results more unsatisfactory. Thus, it is quite common for those who have no knowledge whatever of the natural conformation and minute anatomy of the external tegumentary apparatus, the mucous membrane, or the glandular system, to undertake the microscopic examination of diseased growths in connexion with any of their structures with a *toupet*, which is only commensurate with the failures to which such an ignorant and presumptuous proceeding must invariably lead. And yet we too often find the results of the careful and conscientious micrologist, who has fretted his hours over the midnight lamp, called in question by the superficial amateur, who thinks that a glance at an object through the microscope is sufficient to inform him of all its general and special pathological relations, who can believe only in special and invariable types of form as sufficient guarantee for diagnosis. There is but one safe guide in microscopic, as in all other means of investigation, namely, to make a close and adequate study of normal structure the introductory step to pathological inquiry.

In the section on the anatomy of the skin we find the following observations on the flat muscles. According to his investigations, the author finds that the flat muscles occur in the skin much oftener than has been hitherto supposed: not only do they occur in the tunica dartos, as Todd and Bowman, and Valentin announce, but also in the subcutaneous areolar tissue of the penis and perineum, in the areola of the mamma in the nipple, in all hair-covered places, in the hair follicles, and in the proper corium.

In the subcutaneous areolar tissue of the scrotum, the penis —the prepuce included, and the anterior part of the perineum, the flat muscles are, almost without exception, unusually well developed, so that the larger bundles of them can be easily seen with the naked eye, and their arrangement may be followed out. The muscular fibre-cells described by the author (*Zeitschrift für wissentschaftlige Zoologie, Bd.* 1), and which he considers to form the muscular bundles by their apposition, he has only been able to isolate in a few cases, although the bundles as a whole, when they are surrounded by only a thin layer of areolar tissue, can be readily recognised with or without the addition of acetic acid. We may easily recognise their well-known longitudinal striation and fine granulation (but without large fat granules); further, a large quantity of long and narrow nuclei, sometimes slightly tortuous, from 0.011—0.013‴ in length, and besides, a small admixture of areolar tissue, furnished with fibre-nuclei, which appears to constitute a sort of delicate outer coat around the bundle; also, but rarely, and as the author has once seen in the dartos, tortuous nuclei in the interior of the bundle. The size and number of these somewhat flattened bundles are most remarkable in the dartos, where they measure from $\frac{1}{3}$ to $\frac{1}{2}$‴; they are smallest in the perineum and in the prepuce.

With regard to their disposition it is to be remarked, that they lie partly in the neighbourhood of the vessels and nerves, partly more isolated in the areolar tissue, uniting together (anastomosing) so as to form a network; they also run parallel to the raphe of the scrotum and the long axis of the penis, and in the last-named situation they are often crossed by strong muscular bands. Moreover, this network is disposed in layers connected to each other, so as to constitute in the dartos a true muscular coat, which, on a small scale, resembles that of the bladder. This coat is separated on the inside from the deeper parts (tunica vaginalis communis) by a fine layer of areolar tissue, on the outer side it is in contact with the corium (here very fine), and with the hair-follicles and sebaceous glands

found in this situation. In the areola likewise, and in the nipple, especially in the female sex, these flat muscles are generally remarkably developed. They appear as bundles of the same form as in the dartos, but without a coating of areolar tissue and fibre-nuclei. They are arranged in a circle in a layer situated near the base of the areola, and by reason of their breadth (reaching to $\frac{1}{3}'''$) and their transparent yellowish-red colour, they are visible to the naked eye. They run throughout partly in a circular manner, and partly dip in and become united to a thick network, through the meshes of which the lactiferous ducts pass. Finally, the flat muscles are met with in the hair sacs, and in all situations where hair is to be found; they have been observed in the fore-arm, upper arm, the breast in both sexes, in the anal region, the mons veneris, the labia majora, the abdomen, the back, the thigh and leg; whereas in places not furnished with hairs, as the sole of the foot, and the palm of the hand, they appear in flat broad bundles, 0.10—0.16‴, whose elements are as clear as in the dartos, and which can in favourable cases be isolated. As far as the author can ascertain, these muscular fibres are placed beside the upper part of the hair sac and sebaceous follicle, springing from the upper part of the corium, and passing obliquely from the outside to the inside of the hair sac, and surrounding the sebaceous follicle.

Passing over the subject of the vessels of the skin, we come to that of the distribution of the nerves.

In those parts in contact with the epidermis, the skin is extremely rich in nerves, as much so, in fact, as any structure in the body, while its deeper surface is equally remarkable for the paucity of the nerves distributed to it. In the paniculus adiposus and the superficial fascia, nerves may be recognised in their passage through to the corium, to the hair sacs, the glands, and pacinian bodies; but there can be no doubt that nerves are found in the neighbourhood of vascular expansions, and of the flat muscles of the dartos, of the hair sacs, and the areola mammæ, which are capable of contracting, partly under the influence of psychical causes, partly by galvanism. Under the papillary layer of the cutis, a rich terminal plexus is formed by repeated anastomosis, from which a loop is sent into each papilla. A section of the cutis from the palm of the hand, macerated slightly for a few days, and treated with a solution of soda, will show this arrangement very beautifully. Besides the loop, two other forms of termination are to be observed, that by subdivision of the nervous filament into two or three, and that in which a knot is formed; the last form had been observed by Gerber in

animals. A representation of these three conditions is given. In the first figure we find a twofold partition of a fine nerve-fibre of the terminal plexus—from the human glans penis; in the second, a threefold partition is observed. This specimen was taken from the conjunctiva of the globe of the eye. The third figure shows the nerve-knot, with one afferent and two efferent filaments; these bodies were found in the areolar tissue of the eyelid. These knots are of a circular form, 0.020—0.028‴ in diameter, and consist of one or more nerve filaments knotted together. These filaments vary in diameter from 0.002 to 0.003‴. On a small scale they resemble much the vascular knots (Malpighian bodies) of the kidney, or the knots of the sudoriparous glands. In general, one nervous filament enters and one leaves the knot, but in other cases there will be found two or even four passing out, while one only goes into the body—the conclusion from which is, that they are the result of partition. Two points, as Professor Kölliker remarks, remain still to be cleared up, firstly, whether, besides the loop, free terminations also are to be found; secondly, what relation exists between the forking filaments and those of the terminal plexus, and on neither of these points have we yet sufficiently positive data[a].

We cannot dwell at greater length on the portion of Professor Kölliker's work devoted to the subject of the integument and its appendages. We must only recommend its careful perusal to all interested in the study of cutaneous affections, especially those which require the aid of the microscope for their proper solution.

Very extensive sections are occupied with the anatomy of the muscular and osseous systems, but we are unwillingly compelled to pass them over, in order to make a few extracts from the fourth book, devoted to the nervous system. The microscopic study of the nervous system is one of considerable difficulty, and we doubt not that the practical hints, mixed up with the descriptive matter, will be very welcome to the working histologist. After noticing the several histological elements which enter into the composition of the nervous substance, Professor Kölliker proceeds to remark:—The membrane or coat of the nerve-tubes, discovered by Schwann, is in most nerves extremely difficult to demonstrate. We may study it best in the roots of the cerebral nerves (as the motor oculi) and the spinal nerves, in which, by reason of their greater thickness, it is readily distinguished from the included substance, appearing

[a] See the account of Wagner's recent investigations, given in our present Number.

under the form of two pale streaks of 0.0002‴ diameter, on either side of the fibre, and by means of gentle pressure the contents may be forced out. This cord is also very readily seen in the thickest tubes of the central organs, such as the medulla oblongata, on the addition of caustic soda; this re-agent renders fluid the coagulated contents of the fibres, which escape here and there through rents in the membrane, or at the end of the fibres, often so that nothing remains but the empty tube of membrane, under the form of pale, slightly granular streaks. In the peripheral nerve-fibres we cannot demonstrate the membrane without further treatment by re-agents, except when, by accident in particular places, the contents become separated by pressure; it then appears as a continuous, clear, band-like mass, more rarely as a tube of the diameter of the free fibre.

Boiling in absolute alcohol and glacial acetic acid, treatment with caustic soda and with fuming nitric acid and potash, were found to facilitate the demonstration of the membrane. In the first instance, after removal of a certain portion of the fat of the nerve-tube by the alcohol, the membrane appears as a dark limiting line; after boiling for a a short time in acetic acid, which gives rise to the formation of numerous fat crystals, the remaining portion of the contents escapes, with the exception of the central fibre. When boiled with alcohol, and subsequently treated with cold caustic soda, the nerve-fibres exhibit their coats with pale, often undulating, outlines. The coat is best seen, however, by the action of fuming nitric acid and the subsequent addition of caustic potash; the fat escapes from the nerve-tubes in pale drops, the axis cylinder is dissolved, and the investing membrane remains empty, coloured yellow, and when measured, varies in thickness from 0.0008.‴

Whether the finest nerve-tubes of the central organs and the peripheral nerves possess a structureless coat, is still undecided. In both situations, nerve-fibres of only 0.002″ in diameter can be accurately investigated by either of the methods mentioned above. In fine tubes of 0.001‴ we may occasionally, as the result of pressure, observe free portions of the investing membrane, though, as Henle remarks, it is impossible to come to any very decided result, but, from analogy, Kölliker thinks we may conclude that even the finest tubes possess a sheath.

Some authors describe nuclei in the investing membrane of the nerve tubes, Schwann has found them in embryonal nerve-fibres, and also in the fully-formed fibres of the vagus of a calf; and Rosenthal has seen them in the cerebro-spinal nerves. Henle and Kölliker have but rarely met nuclei in these situa-

tions, though the latter considers it as certain that in the terminal nervous expansions in all classes of vertebrated animals they occur here and there in the coats of the fibres; but very little has been hitherto known as to the chemical nature of the nerve sheaths. Kölliker has found that they are not dissolved by boiling for five minutes in glacial acetic acid; boiling in water, alcohol, and ether, has also no effect on them. By Pettenkofer's test (sugar and concentrated sulphuric acid), which, according to Schultze, imparts a red colour to elaine and the compounds of protein (but not to the substances yielding gelatine or to elastic tissue), it remains without change of colour, thus contrasting clearly with the red tint acquired by the medullary substance. By nitric acid and potash the sheath becomes yellow after some time (xantho-proteic acid), and, according to Paulsen, this effect is also produced on elastic tissue. In accordance with these results, the nerve sheath appears most nearly to approach the elastic tissue, only that the latter is not so resistant to the action of alkalies.

The medullary matter of the nerves, on account of the extreme readiness with which it undergoes change, is one of the most difficult structures of the body to be examined. In order to see it in the normal condition, it is necessary to place under the microscope a portion of a nerve from an animal just killed; we thus have an opportunity of examining some fibres entirely unaltered, but, by the drying of the nerves, they become very quickly changed. An examination of the nerves may be conducted on the transparent parts of certain animals, either dead or alive,—frogs, for example,—by extending them on warm glass slides, and treating them with chromic acid, which preserves the fibres of the brain. The medullary nervous matter is a viscid fluid, extensible, in consistence somewhat approaching to oil of turpentine; when subjected to pressure, it assumes all possible forms, appearing in spheres, threads, &c., pale or dark in outline. Its chemical nature is not very well made out, though it appears certainly to contain all the fat of the nerve-fibre. Nerves treated with boiling ether and alcohol retain manifestly a portion of their contents, which swells upon the addition of acetic acid. When thus treated, if further acted on by sugar and concentrated sulphuric acid, they exhibit the medullary matter, coloured intensely red or yellow, thus indicating the presence of albumen, as there can be no oil remaining. Further, as we have seen in nerves treated with alcohol, and subsequently with nitric acid and soda, the medulla becomes orange (xantho-proteic acid), a further proof of the presence of albumen.

Much controversy has arisen on the subject of the axis-cylinder, by far the most difficult element of the nerve to be submitted to satisfactory demonstration. Kölliker sums up his opinion thus: "*The axis-cylinder is constantly found in every nerve-tube, both central and peripheral, in the fine as well as the large fibres, and certainly exists before death, and independent of the application of any re-agent.*" In the human nerves, in the brain and spinal cord, where it is usually looked for, the axis-cylinder is, in the opinion of Professor Kölliker, to be found with certainty by sufficiently careful examination, and more readily in the central parts, where the abundance of the neurilemma and the delicacy of the sheath oppose but little obstacle to the bursting of the tubes. It appears as a pale, clear, round, or slightly flattened fibre; here and there it is ribbon-like, but can be found even in the finest tubes. The mean diameter of the axis-cylinder is about one-third of that of the nerve-tube; in opposition to the opinions of Donders and Moleschott, Kölliker considers the axis-cylinder as being totally destitute of fat, as, in his experiments, it has not undergone any change except a slight shrinking on the application of ether and alcohol; he regards it as a protein compound, differing from fibrine in that it is insoluble in carbonate of potash, and is much more resistant to the action of acetic acid and the caustic alkalies. As already remarked by Virchow, it has certain analogies with the substance which enters into the composition of muscular fibre: thus, the cerebral matter is hardened by carbonate of potash like the component of muscular fibre; the latter, however, is more readily soluble in caustic alkalies and acetic acid, and is reddened by Pettenkofer's test. From all his inquiries, Professor Kölliker is led to the very decided opinion which we have already cited, that the axis-cylinder is no artificial product, but an actual constituent of the living nerves. As we are unable to devote further space to a more extensive abstract from Professor Kölliker's article on the nervous system, we must only recommend those who are anxious to make themselves acquainted with the most recent researches on this important subject to refer to the work itself, where it will be found treated with very considerable detail.

The first division of the second half of the second volume of the Microscopic Anatomy is occupied with the description of the minute structure of the digestive and respiratory systems. Under the former head the anatomy of the teeth is included, and this, as well as the other portions of this division, are very carefully and fully considered; some of the illustrations are

most excellent examples of the high state of the art of wood engraving in Germany at present[a].

The article on the lungs is not as full as we could wish, and the subject is by no means so well worked out as we would be led to expect from the nature of those which we have already noticed. This is the more to be regretted as we feel quite confident very much indeed remains yet to be done with regard to the micrological pathology of these organs; preparatory to such a step nothing can be more important than a thorough and complete investigation of their normal structure; and it would be extremely difficult to name a really complete essay to which we could confidently direct the student who desires to be acquainted with the actual condition of our knowledge on this subject. On the whole, however, as we have already stated, we know of no work which, when completed, will present a more satisfactory view of the state of histology, and we anxiously look forward to the publication of the remaining parts.

Our limited space compels us to close here for the present; in our next we shall resume with the second portion of the inquiry we have laid down for ourselves, namely, the subject of pathological histology.

On the Pathology and Treatment of Stricture of the Urethra. By John Harrison, F. R. C. S. E., &c. London: Churchill, 1852. 8vo, pp. 104.

Truly we live in an age of unprecedented intellectual energy, and what better evidence, may we ask, can be adduced in proof, than the increased duty which has of late years been imposed upon the press? Formerly it lay in a comparatively lethargic condition: in the present day it yields productions in prolific abundance, sufficient to satisfy the desires of the wildest bibliomaniac! Now to no department of literature does this observation apply with so much force as to the medical. Some fifty years ago, the members of our profession displayed a marked reluctance to write, and seemed timid in committing to paper the results even of their most matured experience; how different is it now, when the "cacoethes scribendi" seems to be a continued epidemic! If those who belonged to the last half century are to be censured for doing too

[a] An inspection of the Transactions of the Academy of Sciences of Vienna will show to what perfection lithography is brought in that part of Germany.

little, assuredly those of the present should be condemned for doing too much. There is a vast difference between quality and quantity. We are far from wishing to disparage modern writings, many of which rival, equal, or surpass those which will ever stand as monuments of the genius of some who have gone before us; but it is impossible to behold the heap of book-trash, not monthly nor weekly, but almost daily, poured forth from the Press, without feeling disgusted, and exciting us from time to time to try and check the tendency of what may in truth be termed a mischievous mania.

The desire for book-making is so strong, and the ambition to figure as an author so unconquerable, that men are ready to sacrifice the interest and dignity of their profession, and to subscribe the silliest productions if their foolish pride be only gratified thereby. The choice subject for this worthless scribbling seems to be diseases of the urinary organs, and perhaps we could not produce a better example of unjustifiable and worse than useless book-making than the volume which lies before us. We must, however, do the author the justice of admitting that the quality of the matter, the character of the composition, the style of the phraseology, and the execution of the plates in his work, are in the happiest state of harmony. As a specimen of the elegant phraseology it contains, the following sentence will suffice: "Some writers have believed that it may originate in too frequent sexual intercourse, or in prolonged erections from repeatedly toying with women." In these choice terms the author alludes to the causes of stricture.

Surely some kind friend might have told Mr. Harrison, if he did not know it himself, that the works of Brodie, Guthrie, and the many other highly distinguished men who have written on this subject, do not require the addition of his experience as here published. Yet the author may plead in excuse, that his production is intended chiefly to "assist the younger members of the profession." This is a very laudable desire, no doubt; but what assistance do they need, may we ask, when they can procure the means of learning as well as Mr. Harrison himself? In fact, if by assistance he means the doing away with the necessity of perusing the works of the standard writers, then such must be most injurious. Yet the author may argue, that a compilation of other men's opinions, or a condensation of the matter contained in other works, must be admitted to be useful, at least to the student. This we allow to a certain extent; but Mr. Harrison's volume is, we contend, neither a compilation nor a condensation, it is far too brief for the one, too incorrect for the other. Many of the subjects of most

importance connected with stricture he disposes of in the most summary manner, others he slurs over with the most provoking disregard for accuracy of description; while others again he gets rid of with truly magical celerity. In a word, we regard the volume as a glaring attempt at book-making.

The Dictionary of Domestic Medicine and Household Surgery. By Spencer Thomson, M. D., L. R. C. S. Edinburgh. London: Groombridge and Sons. 1852. Royal 12mo, Part I. To be completed in twelve monthly parts.

It is a dangerous undertaking for a physician of standing and character, especially if already favourably known to the profession by his writings, as Dr. Thomson is, to publish a popular medical work. Such books are always regarded with suspicion, and if we are to judge from the history of the literature of our profession, we must say justly so. But so much the more hazardous the undertaking, so much the greater honour to him who succeeds; and in our judgment Dr. Thomson has fully succeeded, in the Part of his proposed Dictionary now before us, in conveying to the public a vast amount of useful professional knowledge, without in the least degree trenching on the legitimate rights of medicine. We feel confident that the most certain way of disarming quackery of its greatest stronghold is to diffuse amongst the public just notions of what our science really consists in, and to remove completely the small remnant of that veil of mystery which still envelops medicine—the legacy of our forefathers, adopted by them in an age when the public creed consisted in *omne ignotum pro magnifico*. With these ideas, then, we rejoice at the appearance of the work here commenced, which to the profession also will not be without its uses, as it contains some most valuable observations on hygiene, a subject too much overlooked in strictly medical books.

Gerichtliche Sectionen des menschlichen Körpers Dritte bedeutend vermehrte und verbesserte; zum Gebrauch für Aertze, Wundärtze, und Juristen bearbeitete auflage. Von Dr. Carl Ernst Bock, Professor der pathologischen Anatomie an der Universität Leipzig. Leipzig: Jackowitz, 1850. 8vo, pp. 285. Mit vier colorirten Kupfertafeln.

Juridical Sections of the Human Body, for the use of Physicians, Surgeons, and Jurists. By Dr. Bock. Third Edition, enlarged and improved.

The importance of post-mortem examinations as a means of promoting our knowledge of disease, and of improving its diagnosis and treatment, is acknowledged on all hands; it may, indeed, be questioned whether, in modern times, its efficacy has not been overrated by the many, who, confounding one of the means with the end, identify morbid anatomy with pathology. If cadaveric inspections be indispensable to the medical practitioner in recognising the individuality, nature, and cure of morbid actions, they are not less so when he is called on to discharge his forensic duties. The problems which in the latter capacity he is expected to solve, are fully as complex, and their solution as important to society, as any which present themselves in his ordinary relations. In the fulfilment of his duties in these respective positions, it should never be forgotten that the objects in each are totally distinct. While as engaged in the cure of disease, he seeks the attainment of the ends above alluded to; as a medical jurist, on the contrary, he aims for the most part to establish with precision the *cause of death*, with a view to afford assistance in the settlement of questions of alleged criminal responsibility. He seeks not to determine of what disease his *patient* has died, and to apply the hints which he gathers from the autopsy for the improvement of his future treatment in similar cases, but rather to ascertain, as one qualified to pronounce a public and scientific opinion whether his *fellow-citizen* has been snatched from life by the stroke of sudden but natural disease, or has been the victim of criminal or other violence. The details, therefore, of which he seek cognizance in the dissection must be essentially different in either case; as well, also, as the nature of the conditions which usually present themselves for investigation. The inspections of the physician more frequently regard diseases which have slowly extinguished life: those on which, in his quality of medical witness, he pronounces judgment, are, on the other hand,

for the most part, rapidly or suddenly fatal. The latter section also presents the embarrassing peculiarity, that it constitutes a class of diseases which, viewed as affections frequently latent, are compatible, not alone with a continuance of life, but with the maintenance of apparent health; and, consequently, the causation of death is to be sought not exclusively in the character of the lesions discovered in the organ affected, but also in the functional disorders produced in those physiologically associated with it,—in the resulting disturbance of the circulation in such organs, and in the collateral medical facts observed by the inspector or others, previously to death.

The forms of violence, again, which the medical jurist most usually encounters, such as suffocation, stabbing, strangulation, poisoning, &c., are not those which frequently present themselves in daily practice, and with which the medical man is, therefore, more or less familiar. As completing the contrast, we may add, that while in ordinary dissections the practitioner has generally the advantage of the antecedent history, and, as far as may be, of all the medical facts which tend to guide him, the reverse is too frequently the case in juridical inquiries, the most important guiding links in the medical history being either wanting or so meagre as to be useless. Thus it not uncommonly happens that all that can be ascertained of the deceased's illness is, that he was seen a given number of hours before death, in apparent or usual health. In fact, in the one case, the practitioner seeks to eliminate from the previously well-ascertained history, from the progress of the symptoms, &c., the conditions which he hopes to discover post mortem; in the other, the judicial inspector aims at the *opposite* result. Furthermore, some of the commonest forms of sudden death leave behind them in the body appearances in many respects similar to those resulting from violence; and hence, in medico-legal inquiries another important aid presents itself, the minute *exterior* inspection of the body, which, for obvious reasons, is little regarded in ordinary autopsies. This department (which the Germans dignify with the special title of obductio externa) usually affords most useful information, both positive and negative, and should be conducted with the utmost system, care, and patience. Were more attention bestowed by practitioners on the conditions alluded to, and which include not alone the character of ordinary external injuries, as contusion, ruffling, &c., but also the effects of gravity, putrefaction, gaseous accumulation, and so forth, we should not have to record the lamentable mistakes so constantly committed by witnesses, otherwise

well instructed. Thus Broussais would have escaped the labour of describing an imaginary gastro-enterite, and many Frenchmen's lives might have been saved.

The inquiry next arises, whether in judicial cases a dissection is indispensable to the correct determination of the cause of death. If we judge by the course adopted by the majority of coroners, we should suppose that the medical witness is possessed of an intuitive perception in these matters, and that an interior inspection is rarely necessary; and, accordingly, when a sudden death occurs, without suspicion of violence, it is usually set down to apoplexy, while, if the grounds of such an opinion were sifted, it would appear that it amounted to nothing more than a surmise, which could have been equally well furnished by any unprofessional person. If medico-legal investigations are to be thus conducted, the evidence of medical witnesses in such cases might as well be dispensed with altogether. Still, we are quite willing to admit that instances occur in which a dissection, although always desirable, is not indispensable to the validity of the medical testimony. To this head may, perhaps, be referred cases of severe external injury, such as extensive burns, and grave incised wounds with hemorrhage, &c., in persons proved by trust-worthy witnesses to have been immediately before in good health, and where all the accompanying circumstances negative any other mode of death; or again, some few instances of obvious disease in which the antecedent history was known throughout, and the nature of which had been previously recognised as likely to lead to sudden dissolution. Still, cases of the above kind, it should be distinctly remarked, are but few, inasmuch as the diseases which suddenly compromise life (and these form the chief subject of coroner's inquisitions) are either capable of being prematurely brought to a fatal termination by violence, or leave appearances which are also producible by external injury.

Further, the victim of such disease may have been shortly before death the subject of a criminal attempt, which although perhaps not the cause of the fatal result, yet requires to be substantiated or negatived by the inspection.

A pointed and interesting example of this nature fell under our observation within the last few months. A man, who had laboured under symptoms of heart disease, died in his office and in the presence of others, shortly after returning from the water-closet. From the medical history and the absence of any facts creative of suspicion, it was, perhaps, naturally inferred (but without a post mortem examination) that death had resulted from the cause above stated. A few weeks after-

wards, a fellow-clerk in the office surrendered himself to justice, stating that he had caused the death of deceased by administering to him oxalic acid in a draught of porter, and also, as proved to be the fact, that the remainder of the poison would be discovered in a given place. An exhumation and careful inspection became therefore necessary. A small aneurism of the aorta was found to have burst into the pericardium, and an ulcerated aperture was also discovered in the right ventricle. Now, although these had been evidently the proximate cause of death, it became further necessary, by an examination of the stomach, &c., to determine, in the first place, whether the *alleged attempt* had been made, and, if so, whether *it had precipitated the fatal result.*

As a general rule, also, the examination should not be confined to the cavity obnoxious to suspicion, but include the other two, and, in important cases, the spinal canal also. Many reasons for this might be adduced: we shall content ourselves by observing, that apparently trivial indications in parts not concerned in the cause of death often furnish most important elements for the elucidation of the general facts of the case; that counsel are in the habit of alleging that the true cause of death would have been found in the cavity unexamined; and lastly, that in many of the commonest forms of sudden death, violent or natural, the proximate cause of the event is to be sought, as already stated, not alone in the intrinsic conditions of the individual organ affected, but in the effects produced in other organs physiologically connected with it. The latter circumstance leads us to notice that, according to our observation, due care is rarely taken to determine with precision the relative amount of blood in the different parts of the vascular system, and that in all cases we should recommend the cavities of the heart to be explored *in situ* (the great veins having been previously ligatured near the latter), and a ligature also thrown round the root of the lungs. In cases, also, where the blood remains fluid after death, as in many cases of asphyxia, precautions should be adopted to prevent the emptying the vessels of one cavity by communication with those of another. Thus we have observed in asphyxia by carbonic acid, a quantity of blood to flow from the head, the greater part of which must have been derived from the spine, neck, &c.

From the above considerations, it follows, that few cases occur in which a dissection is not required, and that such examination, to be useful, should be complete. So fully is this doctrine recognised in Germany, which justly boasts of the most able medical jurists, that in many of the states of that

country an examination of the three great cavities is *legally* demanded. The mode in which the post mortem examination is there conducted, and the accompanying formalities, we shall briefly sketch before proceeding to notice Dr. Bock's work. The persons legally required to be present are both medical and legal. Of the former two in number the physicus (gerichtliche arzt) or judicial physician, occupies the most important place. He is charged with the supervision of the dissection, which is to be performed by the official surgeon (gerichtliche wundarzte, or kreis-chirurgus), and to afford such explanations to the legal side as may be required. The surgeon provides the necessary instruments, and prepares the body for examination, &c. The legal persons constitute a sort of *lit de justice* (judicium pœnale rite constitutum), and consist of the investigating magistrate, the actuary, and the assessors: the last named formerly to some extent judges, but now merely spectators of the transaction. With such preliminaries, it may be assumed that the inspection, both internal and external, is undertaken as a matter of serious importance, and conducted with rigorous precision. On its completion, it becomes the duty of the physicus to draw out a report of the appearances discovered (visum-repertum: obductions-bericht) to which he is to attach his medical judgment on the case (gutachten-elogiums-judicium physicum).

On the legal side a report is also furnished (obductions-protocoll), which, in addition to the general facts, gives the result of the inspection as dictated by the physicus, and also the judgment of the latter. This legal report having been read to the physicus and surgeon, is then signed by both. Investigations thus conducted confer at once substantial aid to the furtherance of justice, and place the medical referees before the public in a dignified and estimable position.

We must express our deep regret that the mode in which medico-legal investigations in the coroner's court are conducted, with few exceptions, in these countries, stands in painful contrast with that of our Continental neighbours. So much is this the fact, that these inquiries frequently become the subject of animadversion on the part even of unprofessional persons, and, as respects the efficient attainment of their ostensible object, are hollow and delusive. In offering our aspirations for the advent of a better system, we do not mean to advocate the adoption of all the formalities of the French and German methods. Under our own judicial system, much might be done to render our investigations much more precise and effective. The

office of coroner should be placed on a more elevated basis; its emoluments, where necessary, should be increased, and rendered dependent solely on the performance of legitimate duties, and not derived from other engagements which tend to divert the person who fills it, from those which should occupy his sole attention. Coroners should also be released from the fiscal control of grand-juries, and thus deprived of the temptation to employ an inferior class of medical evidence, and to withhold the necessary investigation in many important cases, in deference to the unwisely parsimonious notions of such bodies, constituted, as they too frequently are, of ill-informed and self-important persons.

Much reformation is, however, required in the medical department also. The evidence of medical persons of all grades is at present receivable without the slightest guarantee for the possession of a competent, or, indeed, of any acquaintance with forensic medicine, and hence not only are the interests of society compromised, but the profession is also humiliated by the frequent discomfitures of the uninstructed witness. The bodies which control medical education should see that the student is afforded, as far as possible, the means of becoming acquainted with subjects on which his public judgment will be often required. In the latter respect, the Irish and Scotch Colleges have done their duty. The College of Surgeons of England, on the contrary, leaves it to be plainly inferred that the due performance of public functions by their alumni is of so little importance, that they have delegated the task of testing the acquirements of their members in forensic medicine to another body which, though constituted by charter, cannot be possibly supposed to have any acquaintance with legal medicine. Such a course must surely excite the astonishment and tax the risibility of our brethren abroad.

In addition to a systematic course of instruction in the facts and principles of forensic medicine, we should wish to see established, where possible (as in large cities), some institution where medico-legal dissections should be conducted, and an opportunity thus afforded to the student of becoming practically conversant with his future public duties.

The qualified witness, having made a complete autopsy, should also, we conceive, be required, in addition to his opinion on the facts as taken in evidence by the coroner, to furnish a report of its details after the manner of the *visum repertum* of the Germans. This document would be most useful for reference where an ulterior criminal process is to be expected, or where more than one medical person is engaged in the inquiry;

a digest also of such documents, with the medical opinion in each, periodically published, would, we have no doubt, be both useful and acceptable to the profession.

The work of Dr. Bock, which has led us to the foregoing reflections, presents itself to the notice of the profession in a third and much improved edition, and, as its title implies, treats of the details which demand attention in inspections undertaken for judicial purposes; and, we feel bound to say, contains much to interest and instruct; although, as we think, it is in some particulars unnecessarily prolix. It is the production of one who is evidently practically versed in the subject of which he professes to treat, and who handles the matter with skill and perspicuity.

Having briefly announced the formalities of the medico-legal inspection, and after a few words on judicial exhumations, he proceeds, in the first place, to treat in detail of all the external conditions which are of so much moment to the medical witness, and for the opposite reason neglected by, and often unknown to the mere *pathological examiner*. Of this class are: rigor mortis, cadaveric imbibition, livor, coloration, the changes produced by putrefaction in different media, &c. The appearances which present themselves in the different forms of violent death, as drowning, strangulation, &c., are next discussed, though necessarily in less detail than in professed treatises on legal medicine. A considerable portion of Dr. Bock's work is occupied by a description of the proper mode of opening the different cavities, the anatomical details which should attract attention in the contained parts, and the physical conditions presented by those diseases which are of most importance in medico-legal inquiries. The last chapter considers the mode of conducting the dissection of new-born children in reference to questions of infanticide, a class of inspections which, in regard to the leading details, falls exclusively within the province of the public physician. It strikes us that Dr. Bock might, with advantage, have enlarged this chapter; while those which treat of the different cavities would admit of condensation. As a whole, however, Dr. Bock's book is deserving of attentive perusal by inspectors of all classes, whether pathological or judicial.

Lectures on the Diseases of Infancy and Childhood. By Charles West, M. D., Fellow of the Royal College of Physicians, Physician to the Hospital for Sick Children, Physician-Accoucheur to, and Lecturer on Midwifery at St. Bartholomew's Hospital. Second Edition, enlarged. London: Longmans. 1852. 8vo. pp. 559.

Soon after the publication of the first edition of Dr. West's work, we noticed it[a] with the high commendation which we thought it merited; and we are gratified to find that the favourable opinion we then expressed has been ratified by the profession, as manifested by the early demand for a new edition. The volume is now improved in all respects, the entire having undergone a careful revision by the author, whose more matured experience has enabled him to supply some slight deficiencies which existed in it, and to add "altogether fifty pages" of new matter. It thus "contains the results of 640 observations, and 199 post-mortem examinations, chiefly made among 16,276 children," during the ten years of Dr. West's connexion with the Children's Infirmary in Lambeth. When we add that these results have been deduced by a physician of undoubted talent, of judicious observation, and of sound judgment, we need say no more in recommendation of Dr. West's book to our readers.

[a] New Series, vol. x. p. 442.

PART III.

MEDICAL MISCELLANY.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

TWELFTH SESSION.—1851–52.

Partial Displacement of the Sternal End of each Clavicle.—Dr. Stokes exhibited a remarkable example of displacement forwards and upwards of the sternal extremity of each clavicle, the result of powerful inspiratory efforts. He remarked, that all were aware of the fact, that in certain cases of intra-thoracic tumours,—for example, aneurism,—pressure carried beyond a certain point was capable of pushing the inner end of the clavicle forwards, and that this displacement was sometimes followed by a temporary alleviation of the more urgent symptoms. It was, however, to be remembered, that the luxation did not altogether depend upon the amount of pressure directed against the bone; for he had seen, in a case of pleuritis, where effusion to a great amount took place rapidly, the lung thrust upwards into the cervical region, forming a tumour which had the appearance of a large goose-egg, without displacement of the end of the clavicle having occurred.

The patient in the present instance was an extremely emaciated, weak, and delicate boy; he was admitted into the Meath Hospital, with ascites to an enormous amount, dependent upon cirrhosis of the liver; it was, as usual, accompanied by enlargement of the spleen, the uniform occurrence of which, in cases of cirrhosis of the liver, had been long since established by Professor R. W. Smith. With a view to afford temporary relief, the operation of paracentesis had been twice performed: after the second operation, the symptoms of peritonitis set in, but the inflammatory action was subdued by treatment; the progress of the ascites was not, however, arrested; on the contrary, the fluid seemed to be poured out more rapidly than before, until at length the greatest possible amount of dyspnœa was established; and after the lapse of a short time, from the pow-

erful action of the sterno-mastoid muscles, the sterno-clavicular articulations became so loose that the end of the bone upon each side could be easily moved in any direction. The muscles of the neck employed in forced respiration, were all acting powerfully. This deplorable state lasted for a few weeks, when death released the patient from his sufferings.

Upon examining, *post mortem*, the state of the articulations, it was found that the ligaments had been stretched to a great degree; the sterno-clavicular ligaments were fully half as long again as natural; the rhomboid ligaments were also elongated. The diaphragm had been pushed up as high as the fourth rib by the effusion in the abdomen; the liver presented the appearances usually noticed in cirrhosis, and the spleen was greatly enlarged. The portal system was distended with blood, as were also the superficial veins of the abdomen. Dr. Stokes also alluded to a case which he had seen, of displacement of the sternal end of the clavicle, consequent upon an enormous and rapid effusion into the right pleura: it remained displaced for four days, when absorption took place quickly, and the articulation became again firm.—*December* 20, 1851.

Purulent Cysts in the Heart.—Dr. Mayne presented a specimen of purulent cysts in the heart, taken from the body of a man aged 55, who at the time of his admission into hospital was quite incapable of giving any account of his illness. The surface of his body was everywhere livid, and the face and lower extremities swollen; the external jugular veins were distended, and exhibited a characteristic wavy regurgitation. He had cough, with profuse muco-purulent expectoration and orthopnœa; respiration 30; pulse 120; the skin was covered with cold perspiration. His memory was defective, his sensibility blunted, and there was a strong tendency to somnolence. When asked his name, he replied; but he could not tell the duration of his illness, how it began, nor even his present ailments. The lungs were everywhere resonant upon percussion; but the respiratory murmur was obscure, and accompanied by a large muco-crepitant râle. The region of the heart was somewhat duller than natural, and the impulse of the organ feeble; but the rhythm was natural, and at no period after his admission into the hospital could any *bruit* be heard over the heart or in the course of the great vessels.

Upon the day after his admission it was reported that he had moaned and raved incessantly: when roused, he could answer a question or two coherently, after which he relapsed into a semicomatose state. He died upon the ninth day after his reception into the hospital.

Autopsy.—The vessels of the scalp and of the dura mater were greatly congested, and serous effusion had taken place into the sac of the arachnoid and ventricles of the brain, the substance of which was unusually vascular. When the chest was opened, the lungs collapsed but imperfectly, owing to the large quantity of thick mucus

which remained in the tubes and prevented the exit of the air. The lining membrane of the trachea and bronchial tubes was intensely vascular, and the tubes themselves, down to their smallest branches, filled with a thick, adhesive, muco-purulent secretion, similar to that expectorated during life.

The right auricle was filled with a coagulum, which extended also into the right ventricle; it was of a buff colour, totally devoid of red globules, of firm consistence, and adherent to the walls of the cavities by processes which embraced the fleshy columns in the ventricle and the musculi pectinati in the auricle. The apex of the right ventricle contained a number of purulent cysts, distinct from the fibrinous coagulum, and varying in size from that of an almond to that of a grain of duckshot. They were distinct from one another, and adherent by one side to the lining membrane of the ventricle, being free throughout the remainder of their circumference. They contained a thin purulent fluid, and their parietes seemed to be constituted by a tough fibrinous substance. The abdominal viscera were healthy.

Dr. Mayne, having alluded to the examples of purulent cysts of the heart, which had upon various occasions been exhibited before the Society by Drs. Stokes, O'Ferrall, and Bigger, then noticed briefly the opinions which were entertained as to the nature and origin of these bodies, and was inclined to agree with those who believed that the fibrine or coagulum is first deposited from the blood, and that a process of softening and conversion into pus then takes place in its centre. There was in the case which he had detailed no suppurating surface from which the matter could have been absorbed; neither was there any apparent phlebitis or endocardial inflammation.—*January* 10, 1852.

Cirrhosis of the Liver; Pulmonary Apoplexy.—Dr. Gordon laid before the Society the viscera of the chest and abdomen of a man, aged 40, who had led a temperate life, but was obliged to labour very hard, and had been latterly much employed working in the canal and docks, so that he was generally above his knees in water. About the end of last August he was seized with dysentery, for which he was admitted into Sir Patrick Dun's Hospital in the second week in September; he had then severe pains in the abdomen, from which, indeed, he had been suffering long before the dysenteric affection began. He had also ascites, which had come on so gradually, that his attention was first drawn to it by his feeling his clothes too tight for him. He left the hospital at the end of a fortnight, relieved from the dysentery, but without any diminution of the effusion into the abdomen having taken place. He again resumed his occupation, but the ascites increasing, he was admitted into the Whitworth Hospital on the 13th of October, 1851.

The swelling of the abdomen was uniform, and several enlarged and tortuous veins were seen beneath the integuments; there was tenderness on pressure, and he had attacks of diarrhœa alternating with constipation. About ten days after his admission the opera-

tion of paracentesis was performed, after which the state of the liver and spleen was satisfactorily ascertained. The latter organ was greatly enlarged, but the former much diminished in size; its right lobe was scarcely to be felt when the fingers were pressed upwards beneath the cartilages of the ribs; the left lobe, however, was prominent in the epigastrium.

For a considerable time the case presented no feature of peculiar interest; the fluid rapidly accumulated, and paracentesis was several times performed. Against the end of November the scrotum and lower limbs had become anasarcous to a great degree; he had great thirst, a red, glazed tongue, and frequent vomiting. Occasionally he suffered from severe and burning pain in the stomach, always followed by violent retching, and after some time by slight melænic vomiting; there was a most abundant watery discharge from the skin of the upper half of the body, and the urine was of a deep orange colour.

On the 11th of January, he was suddenly seized with intense dyspnœa and pain in the left side. He became collapsed, and had the appearance of a person labouring under a sudden pneumo-thorax, but on examining the chest, although the respiratory murmur was absent, the sound on percussion was dull; the dulness and absence of respiration were confined to the upper two-thirds of the left lung. He had now also cough, with bloody expectoration. He died six hours after the commencement of these symptoms.

Autopsy.—The right lung, and the inferior portion of the left, were perfectly healthy, but the remainder of the left was gorged with blood, which was partly fluid, and partly coagulated in masses, around which the pulmonary structure was lacerated; externally the lung was of a dark blue colour.

The liver presented the appearances usually observed in the advanced stage of cirrhosis, and the spleen was greatly enlarged, being nearly equal to the liver in size.—*January* 17, 1852.

Cirrhosis of the Right Lung; Obstruction of the Right Pulmonary Artery.—Dr. M'Dowell gave the following details of the case from which this specimen had been obtained. The subject of the disease was a man of middle age, who had laboured under symptoms of pulmonary disease for five years and a half before his death. His illness began with a severe attack of pleuritis, with hemoptysis, cough, and stitch in the right side, and he continued ever since to suffer more or less from pain in the side, accompanied occasionally by hemoptysis, cough and a certain amount of dyspnœa being always present. Two years ago he became dropsical, and was then admitted into the Whitworth Hospital. At this period the diagnosis of cirrhosis of the lung was made. He was discharged after a few weeks, relieved of his dropsy, and after a lapse of eighteen months was readmitted (July, 1851). He had then cough, with profuse mucopurulent expectoration; his lips were livid, his countenance had a congested appearance, and the jugular veins were distended; he had also dyspnœa, which the slightest exertion increased to a distressing

degree. He was not much emaciated, nor were there any marked symptoms of hectic fever. The right side of the thorax was diminished in size, and much flattened beneath the clavide; it was nearly motionless during inspiration; its upper portion yielded a perfectly clear sound upon percussion, but there was dulness over the lower three-fourths of its extent. Over the left side, and in the cardiac region, the sound was clear. The heart was displaced to the right side, its apex striking the parietes a little below the right nipple. In the displaced heart, a loud systolic bellows murmur was heard over its apex. This murmur did not exist when the man had been last in the hospital. Auscultation gave the following results:—No vesicular murmur was heard in any part of the right lung, except in the infra-clavicular space, while posteriorly, from the spine of the scapula downwards, tubular breathing and bronchophony, with mucous rales, were audible; immediately above and below the spine of the scapula, there was muco-crepitus, amounting to gurgling, with intense pectoriloquy. The left lung was free from disease, but augmented in volume. The diagnostic signs of cirrhosis of the lung in this case, as contra-distinguished from those of phthisis, were the following:—The comparatively slow progress of the disease; its limitation to one side; its greater extent in the lower than in the upper lobe of the lung; the predominance of the signs of solidification over those of softening; the peculiar displacement of the heart; and the absence of hectic fever and of all signs of laryngeal disease. The patient was discharged in August, and again admitted in January, 1852, labouring under general dropsy, intense dyspnœa, and recent bronchitis in the left lung; the apex of the right was now also diseased. He died shortly after admission.

Autopsy.—The right lung was not much larger than the closed hand, remarkably dense, and a section of it presented the appearances of a carnified lung; the bronchial tubes, however, were not dilated, in which respect it differed from cirrhosis, as described by Dr. Corrigan. The pleura had attained a thickness of nearly an inch, and the aortal and pulmonary layers were but partially adherent; in the spaces or cavities thus left, upwards of a quart of clear serum was contained. The left lung was augmented in volume, congested, and œdematous; the latter changes, however, were of recent origin. The heart lay behind and to the right of the sternum, with its apex directed to the right side; its left cavities were normal, but those of the right side were enlarged, and their walls unusually thick. The right auriculo-ventricular opening was much dilated. The trunk of the right pulmonary artery was completely filled by a firm, laminated, colourless coagulum of fibrine, which was adherent to the lining membrane of the vessel. The left branch was larger than natural, and unobstructed. In the course of his observations upon the preceding case, Dr. M'Dowell said:—"I connect the hypertrophied condition of the right chambers of the heart with the obstruction of the right pulmonary artery, which led to regurgitation through the right auriculo-ventricular opening into the vena cava, of which there

was evidence during life in the distended state of the jugular veins. To this regurgitation must also be referred the systolic *bruit* heard over the apex of the heart, for all the valves were healthy; during life this murmur had been considered to be indicative of mitral valve disease; its real cause was not suspected, for there does not appear to be any instance recorded of a *bruit* at the apex of the heart depending on regurgitation through the right auriculo-ventricular opening. It is generally admitted that whenever, from temporary causes, the pulmonary circulation is obstructed, the right ventricle is relieved from the pressure of the accumulating blood by regurgitation being allowed to take place, by a separation of the flaps of the tricuspid valve. In this specimen there was a permanent obstruction in one of the great pulmonary trunks, a condition which would render this provision indispensable."

The important physiological fact here alluded to was first briefly noticed by John Hunter; subsequently Mr. Adams, in the Dublin Hospital Reports, directed special attention to it, and showed its connexion with certain pathological conditions of the heart. Of late years, in Guy's Hospital Reports, Mr. King has described the anatomical mechanism by which this regurgitation is permitted by the tricuspid valves, and which he has styled its "safety-valve function."—*January* 24, 1852.

Morbus Coxæ, with displacement of the Head of the Femur.—Mr. Hamilton exhibited a specimen of scrofulous disease of the hip-joint, taken from the body of a boy aged 9, who had been admitted into the Richmond Hospital with an immense abscess of the right thigh, extending from the crest of the ilium nearly to the knee, and giving to the limb a conical or castle-top shape. The skin was pale, and several large veins ramified upon it. It was evident that the abscess depended on morbus coxæ, and that the head of the femur had become dislocated upon the dorsum of the ilium. The limb was shortened two inches, the foot inverted, and the toe resting upon the instep of the opposite one. When the abscess was opened, and the sac emptied, the head of the bone could be felt on the dorsum of the ilium, near the sciatic notch. The disease was only of one year's duration, and until lately had not been attended with much pain. The boy died two months after his admission into the hospital, exhausted by hectic fever; for a short time before his death the discharges from the bowels were mixed with blood.

Upon examination after death, the glutæus maximus muscle, where it covered the displaced head of the femur, was of a greenish-black colour, and perforated near the trochanter by two ulcerated openings, each as large as a shilling, and leading to the cavity where the head of the bone lay. The lower part of the glutæus medius was also ulcerated, and through the opening thus formed the head of the femur had passed, so as to come in contact with the deep surface of the glutæus maximus. The cartilage of the head of the bone had been totally destroyed, the cancellated structure exposed, and the head somewhat flattened where it lay upon the ilium; the epi-

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physis was perfectly loose. The acetabulum, deprived of its cartilage at its lower part, was separated into its three component parts, and at its fundus there was a perforation which conducted into an abscess in the internal iliac fossa, of considerable size, and which had compressed the iliac vein, giving rise to the œdema of the limb observed during life. The perforated capsular ligament formed a collar round the neck of the femur; its lower portion was nearly half-an-inch in thickness.—*January* 31, 1852.

Dislocation of the Tibia and Fibula backwards at the Ankle.—Professor R. W. Smith exhibited a cast and a series of drawings illustrative of this extremely rare form of luxation, and gave the following history of the case:—A man, aged 29, a sailor, was admitted into the Richmond Hospital upon the 13th of February, 1852, for an injury of the right ankle-joint, sustained seven months previously. He stated that he was in the hold of a vessel, arranging the tackle upon a large cask of paint weighing 13 cwt., which it was necessary to raise to the deck; one end of the cask was resting upon a loose mass of flint, employed as ballast, and raised above the other, upon which both hooks of the chain were fixed, the object being to shove the cask round, in order to bring it under the opening of the hatchway. He was standing at this end of the cask, giving it the proper direction with his hands according as it was raised; with his left leg resting upon a small box, and his right foot placed diagonally across two provision casks, which lay side by side in contact with each other; the heel rested upon one, while the anterior part of the foot was supported by the other; the foot was flexed upon the leg, the leg strongly bent upon the thigh, and the thigh flexed upon the pelvis; the limb was in such a position that the knee was advanced several inches beyond the ankle-joint, and placed directly beneath the extremity of the cask, which was now raised about a foot above it. According as the cask approached the vertical direction, the hooks, of course, had a less secure hold; and when it was about eighteen inches above his knee they slipped off entirely, and this enormous weight of 13 cwt. fell upon the lower end of his femur, immediately above the patella, driving the leg downwards and backwards between the two small casks, until the foot was stopped by the floor of the hold of the vessel, the front of the foot coming in contact with a large piece of flint, by which its flexure upon the leg was augmented. He remained in this position for about a minute, while the hooks were being re-adjusted and the cask again raised; the limb was then extricated, and he was brought up and laid upon the deck. He was visited in less than half-an-hour by the surgeon and assistant-surgeon of one of Her Majesty's vessels of war, which was at the time lying in the same harbour. These gentlemen, after a brief consultation, had recourse to a strong and protracted extension of the limb; the patient was then taken ashore, and in the evening he was again visited by the assistant-surgeon, who,

grasping the heel with one hand and the dorsum of the foot with the other, again applied as powerful extension as he was capable of, and then informed the man that everything was now in its place. The patient, however, asserts positively, that upon neither occasion was the appearance of the limb in the slightest degree altered, and that the deformity which the foot now presents has existed unchanged from the moment of the occurrence of the injury. A splint, similar to that employed by Dupuytren for fracture of the fibula, was now placed upon the inner side of the leg, and the foot secured to it in the position of adduction. Upon the following day, however, the swelling was so great, that it was necessary to remove the splint; nor was it again applied for three weeks; it was then put on and worn for two months. Upon the 1st of October, about three months after the occurrence of the accident, the vessel to which the patient belonged, sailed, and arrived at the port of Dublin a few days before the man presented himself at the Richmond Hospital. He was at once received into the hospital, and an accurate examination of the limb having been made, the following results were obtained:—

The muscles of the calf of the leg were wasted, and the limb was from half to three-quarters of an inch shorter than its fellow; the natural prominence of the heel had altogether disappeared, and the curve of the tendo Achillis was effaced, the tendon passing down to its attachment in a straight and vertical direction. The dorsum of the foot in front of the tibia was exactly one inch longer than upon the sound side: the external malleolus was placed seven inches behind the extremity of the fifth toe, and one in front of the tendo Achilles, while upon the opposite foot the former measurement was six inches, and the latter two; it was likewise rather more than half an inch nearer than natural to the outer margin of the sole of the foot.

The lower extremity of the tibia could be felt, and was distinctly visible through the integuments, immediately in front of the tendo Achillis, forming a striking and remarkable prominence at the posterior and inner part of the region of the ankle; it was difficult to ascertain accurately the point of the internal malleolus, as this portion of the bone appeared altered from its natural form; its most inferior part was, however, nearer to the sole of the foot than the inner ankle was upon the sound side.

The anterior part of the superior surface of the astragalus could be felt, but it was impossible to distinguish the entire of its articular surface; it seemed to be in a great measure concealed by the extensor tendons. The antero-posterior arch of the foot was increased, so much so that the plantar region was fully an inch less in extent than upon the opposite side. The foot, which had a tendency to rest principally upon its outer margin, was placed at a right angle with the leg, and could be neither flexed nor extended. It was colder than natural, and the patient (who was unable to throw the weight of his body upon it) complained that it was frequently the seat of

numbness and distressing tingling sensations. The course of the posterior tibial artery at the ankle could not be discovered. Upon the outer side of the leg, immediately in front of the lower third of the fibula, a very prominent tendon was seen passing down towards the fifth metatarsal bone; it may, probably, have been that of the peroneus brevis, displaced from its groove.

That the preceding case is to be looked upon as affording an example of luxation of the tibia and fibula backwards at the ankle must, I imagine, be apparent to all who consider attentively the symptoms which the limb presented, and reflect carefully upon the mode in which the injury was inflicted. The following are the signs which constitute the proofs of the luxation of the tibia:—The shortening of the leg, the double approximation of the lower end of the tibia, to the sole of the foot upon the one part, and to the anterior surface of the tendo Achillis upon the other; the effacing of the curve of that tendon and of the prominence of the heel; the elongation of the anterior part of the dorsum of the foot; the exposure to the touch of the front of the upper surface of the astragalus, and the evidence of pressure upon the posterior tibial artery and nerve, derived from the coldness and numbness of the foot. I shall presently endeavour to show that the preceding symptoms cannot be explained upon the hypothesis of fracture of the tibia close to the joint, with displacement of the upper fragment backwards.

That the injury which the fibula had sustained was a dislocation and not a fracture is apparent from the approximation of the external malleolus to the posterior extremity of the os calcis; for no simple fracture of the fibula could alter the relative normal bearings of its malleolar process to the astragalus and os calcis.

As regards the mode in which the accident happened, no conjunction of circumstances could possibly be imagined more favourable to the production of a dislocation of the leg backwards at the ankle, than that under which the injury occurred in this remarkable case. The thigh was flexed at a right angle with the body, the leg bent upon the thigh, and the foot flexed upon the leg; the foot was in such a position that its anterior part was above the level of the heel, so that the articular pulley of the astragalus was directed from before backwards and downwards; the knee was not only considerably bent, but also advanced far before the ankle-joint. It is obvious that, under these circumstances, the tendency of a force applied to the upper part of the knee would be to drive the tibia downwards, and to cause it to glide from before backwards off the articulating surface of the astragalus. The first effect of the falling of the hogshead upon the knee was to drive the leg down between the two small provision casks upon which the foot had been resting; the luxation, no doubt, did not occur until the foot came in contact with the floor of the hold of the vessel; the limb was then placed between two forces acting in opposite directions—one, the resistance of the floor tending to drive the foot upwards, the effect of the other (the superincumbent weight) being to force the tibia downwards and backwards.

Had the weight fallen from any considerable height, in all probability a compound comminuted fracture would have resulted; but the distance being not more than a foot and a half, the opposite extremity of the hogshead being supported, and the leg yielding to the pressure until the foot came in contact with the floor, the tendency of the force would rather be to *push* the bones from their place. Some idea of the force of the pressure to which the parts were subjected may be formed from the fact, that (there being no wound in the integuments) the blood oozed out in drops from the pores of the skin stretched over the end of the dislocated tibia.

Although the majority of systematic writers upon surgery have described the symptoms of luxation of the tibia backwards at the ankle, Nélaton alone appears to have both seen the injury and to have had an opportunity of investigating, *post mortem*, its anatomical characters; but it is for ever to be regretted that the details of the symptoms, and of the dissection of the limb, are so deficient as to deprive this case of nearly all the importance that would otherwise attach to it. The whole subject of the dislocation in question is thus disposed of:—

"La luxation du pied en avant se produit par un mécanisme analogue, le pied étant fortement fléchi; nous avons vu une luxation produite d'apres ce mécanisme sur une jeune femme qui fut jetée par une fenêtre du quatriéme étage, et tomba sur les pieds de maniére à toucher le sol par les talons. Dans ces cas, le bord anteriéure de la mortaise tibiale avait été séparé, et les aspérités de l'os résultant de la fracture ayant glissé d'avant en arriére sur la poulie de l'astragale, avaient imprimé sur son cartilage des sillons que l'on peut facilement reconnâitre á l'autopsie, et qui ne pouraient laisser aucun doute sur la succession des mouvements qui avaient precédé la luxation"[a].

In the Cyclopædia of Anatomy and Physiology[b], Mr. Adams has recorded the particulars of a case of injury of the ankle (as far as they could be ascertained) observed by the late Mr. Colles, who had a cast taken of the limb. "In this case," says Mr. Adams, "the tibia seemed thrown partially backwards from the articular pulley of the astragalus; the fibula was unbroken, and was also carried backwards with the tibia; the foot, measured from the instep upon its dorsum, was longer than that of the opposite side, the heel was shorter and less pointed, the space in front of the tendo Achillis, near to the os calcis, was partially filled up, and a hard swelling occupied the lower and back part of the tibia, which was evidently formed by a quantity of callus, which had cemented together the fragments of a fracture of the lowest part of the tibia; the leg was shorter than the opposite limb.

"It would have been interesting to have learned the precise manner in which this accident had occurred; but as to this, or the immediate symptoms which followed the injury, I could get no satis-

[a] Elémens de Pathologie Chirurgicale, par A. Nélaton, tom. ii p. 477.
[b] Page 161.

factory information. The man did not apply to Steevens' Hospital until the bones were united in their new and faulty position. Besides the partial dislocation backwards of the tibia, this bone, with the outer malleolus of the fibula, was inclined somewhat outwards, and the man walked lame and most awkwardly on the outer edge of the heel and foot, the inner side of which was somewhat curved inwards."

It is difficult to pronounce with certainty upon the exact nature of the injury in this case, but there are certainly grounds for believing that it was not one of simple luxation of the tibia backwards, but rather of fracture of the lower end of that bone close to the ankle-joint, with displacement of the upper fragment backwards. This view of the case, put forward by Mr. Douglass, of Glasgow, has been adopted by Sir Astley Cooper, as appears from the following quotation from his work on Dislocations and Fractures[a]:

"No instance has been recorded by any individual of a dislocation of the tibia backwards from the astragalus. In the Cyclopædia of Anatomy, a case by Mr. Colles, of Dublin, is noticed, which was supposed to be one of dislocation backwards; but I suspect, says Mr. Douglass, it must have been one of fracture close to the ankle-joint, such as I am going to describe." The following is an abstract of the case alluded to:—A man, aged 41, was admitted into the Glasgow Royal Infirmary in July, 1834. Three years before he had fallen from a height of sixty feet, and was struck on the front of the leg, close to the ankle, by a plank which fell with him. A fracture above the articulation took place, and a false joint formed.

On examination, the lower part of the tibia, with the internal malleolus, was felt attached to the astragalus, while the shaft of the tibia was thrown backwards. The leg was three-quarters of an inch shorter than the right, and the foot seemed lengthened in front and shortened behind. When he walked, the lower end of the shaft pressed against the tendo Achillis, making it project backward. The fibula was seen projecting on the outer side in a similar manner. The man insisted upon having the leg amputated.

Upon dissection, the tibia and fibula were found to be fractured transversely immediately above the ankle-joint, which remained perfectly uninjured. The shafts of the bones passed backwards and downwards. The end of the tibia did not rest on the os calcis, but pressed backward and downward against the tendo Achillis.

In the accounts of luxation of the lower extremity of the tibia backwards, given by those authors who have described the accident without having ever seen it, it is stated that the displacement takes place while the foot is extended upon the leg. Baron Boyer, for instance, thus expresses himself when describing the dislocations of the foot: "La luxation en devant ne peut avoir lieu que dans une extension forcée et subite de la jambe sur le pied, lorsque celui-ci étant engagé et retenu par un obstacle quelconque, on tombe à la ren-

[a] Edition by Bransby Cooper, p. 259.

verse;" and again he says: "La plus grande extension du pied; mouvement absolument nécessaire pour que la luxation en devant puisse arriver"[a].

Vidal (De Cassis), in alluding to the displacements in question, remarks: "L'accident qui produirait cette luxation est peu commun; c'est, dit on, une extension violente du pied par l'effet d'une chute du corps en arrière, le pied étant retenu par un obstacle insurmontable"[b]. Marjolin has made a similar statement[c].

Now, as is well known, extreme extension is the position of the foot during the act of displacement of the tibia forwards; it is, therefore, strange to assert that the same position of the foot exists in cases of luxation of the same bone backwards; but error is very liable to be committed when descriptions are founded upon theory and not upon observation. Boyer, for instance, never saw the dislocation backwards of the lower extremity of the tibia, and only once witnessed its displacement forwards. Nélaton has avoided falling into this mistake.

I may here observe that the nomenclature of these injuries, adopted by the French writers, has always appeared to me to be incorrect, and calculated to produce erroneous ideas as to the mechanism of their production, for the foot (even according to their own statements) is and must be fixed either in forced extension or flexion, before the luxation either forwards or backwards can occur. It is, therefore, manifestly improper to designate them from the part which is immoveable at the time, instead of naming them from that component of the articulation which, in reality, does move from its normal position, namely, the tibia.

It has been also asserted that, in the accident which I have been considering, the astragalus forms a striking prominence upon the dorsum of the foot; it was not so in the instance I have detailed: indeed, it was remarkable how small a portion of its articular surface could be distinguished. We are, I imagine, to refer this, in some measure, to its being concealed by the extensor tendons passing over it abruptly from the front of the leg, and in part to the circumstance of the luxation backwards of the lower end of the tibia being incomplete; for I am inclined to think that, according as examples of the injury in question are multiplied, it will be found that the inferior extremity of the tibia does not entirely abandon the articular pulley of the astragalus, being, in fact, of considerably greater extent from before backwards than the space comprised between the posterior edge of the astragalus and the front of the tendo Achillis; the latter, in the dissected limb lying upon the table, measuring exactly one inch, while the former is one inch and three-quarters. I infer, therefore, that, in a complete luxation of the lower end of the tibia backwards, the tendo Achillis would be pushed from its direction, so as to become convex posteriorly, thus affording a

[a] Tome iv. p. 403.
[b] Tome ii. 364.
[c] Dictionnaire de Médecine, tom. xiii.

means of distinguishing between this and the partial luxation, in which the concavity of the tendon is merely effaced. As yet, however, there are no data upon which to form a positive opinion respecting the anatomical characters of either form of this rare and remarkable displacement.

In his work upon the Principles and Practice of Surgery, lately published[a], Mr. Pirrie states, that he once had an opportunity of seeing an example of dislocation of the lower end of the tibia backwards in a girl fourteen years of age; the injury occurred two years previous to his seeing it, but the nature of the accident has not been mentioned; no attempt had even been made to reduce the displacement. The foot in front of the malleoli was greatly lengthened, the heel and back of the leg were in a line with one another; the malleoli were unbroken and driven backwards, preserving their natural bearings to each other. Whenever the girl threw the weight of her body upon the foot, its anterior extremity bent upwards, so as to render walking impossible. The tibia seemed to rest upon the os calcis behind the astragalus.

Is it possible that this case could have been one of separation of the lower epiphysis of the tibia, with displacement of the shaft of the bone backwards? The early age of the girl, and the circumstance of the two malleoli preserving their natural relations to one another, favour this idea; but the statement (vague though it certainly is), that these processes were driven backwards, is opposed to it. It is much to be regretted that measurements were not made of both limbs, so as to ascertain exactly in what respects the malleoli upon the injured side had lost their normal bearings to the different parts of the skeleton of the foot.

In the brief description of the case noticed by Nélaton, no mention is made of the condition of the fibula, but in the other instances recorded as luxations of the tibia backwards, it is remarkable that the fibula, unbroken, was also displaced, the reverse of what usually happens in the dislocation of the tibia forwards. I have, however, twice seen the latter injury without fracture of the fibula.

It should not be difficult to distinguish the accident which I have been considering from other injuries occurring in the vicinity of the ankle-joint. The separation of the lower epiphysis of the tibia with displacement of the shaft of the bone backwards is, probably, the accident which would bear the strongest resemblance to it; but in the latter there would be no disturbance of the natural relations of the malleoli either to one another or to the bones of the foot, whereas in the former these processes would, of course, be approximated to the posterior extremity of the os calcis. The circumstance of the malleoli preserving their proper relations to the os calcis would, of itself, indicate the true cause of the elongation of the front of the foot, and of the effacing of the prominence of the heel.—*February* 14, 1852.

[a] Page 337.

REPORT

ON THE PATHOLOGICAL MUSEUM OF THE BELFAST MEDICAL SOCIETY.

BY A. G. MALCOLM, M. D.,

ONE OF THE VICE-PRESIDENTS OF THE SOCIETY.

Continued from p. 477, vol. XI.)

THE present Report comprises twenty-one illustrations.

XXXIX.—PSOAS ABSCESS; CIRRHOSIS OF LIVER.—A lad named Higgins, aged 15, was admitted into the General Hospital, Belfast, in the month of September, with symptoms of fever. One of his brothers had died anasarcous, and another, of pulmonary consumption. The symptoms were so slight, that in a few days he was transferred to the convalescent ward, where, after the lapse of a week, anasarca was observed to be commencing. He was mercurialized, and digitalis and acetate of potash administered without effect. The swelling increased, especially in the abdomen, which became so enlarged as to suggest paracentesis. The urine was repeatedly examined, but on no occasion was it albuminous. In this state he died.

The thoracic and abdominal cavities were carefully examined. In the former, the lungs were perfectly healthy, as also were the heart and pericardium; a small quantity of serous fluid occupied the pericardial sac. The liver was lobulated, especially the left lobe, which presented a well-marked specimen of cirrhosis. The spleen was greatly enlarged, but its texture was normal. The kidneys were also over the usual size; and a section of the cortical portion presented the yellow, granular appearance and soft consistence of incipient "granular degeneration." The peritoneal covering exhibited slight, straggling injection, and a considerable quantity of straw-coloured and slightly turbid fluid occupied the pelvic cavity. On deeper inspection, an abscess was detected occupying the site of the right psoas muscle, burrowing along its entire course, from the diaphragm to the groin, without, however, presenting any prominence in the latter situation. A portion of the liver has been preserved.

In this case the febrile symptoms were in all probability due to the suppuration in the psoas muscle, while the inefficiency of the treatment is readily explained by the chronic and permanently disorganized condition of the liver, not to mention the affection of the other parenchymatous organs.

XL.—SCHIRRUS (?) OF THE PYLORUS; THICKENING AND CONTRACTION OF THE ILEUM AND COLON.—John Hisslop, aged 37, was first seen by the author on the 18th November. He was a man of large frame, but much emaciated, and he dated the origin of his illness some fourteen years previously. The symptoms were always

gastric, chiefly vomiting, pyrosis, acidity, flatulence, and costiveness. He never complained of pain until the past summer, and blood appeared in the matters vomited for the first time in the beginning of October. When pain was first felt it was in the right side and shoulder, afterwards variously over the abdomen. The vomiting came on generally about six hours after taking food. The appetite was indifferent, the mouth felt dry, but there was no thirst; and a peculiar taste, like oatmeal cake, was always experienced before vomiting. He never perspired, and the skin was uniformly dry and scaly. The tongue was furred, and brown in the centre. The matter vomited was of different colours and consistency; when not the ingesta, it was a green fluid, or white and effervescing, or like strong black tea. The urine was of a dark hue and scanty. His pulse was 80, soft and feeble. His nights were rendered miserable by shifting abdominal pains and obstinate flatulence. Dark scybalæ, enveloped in mucus, were frequently removed by enemata, but without such means his bowels remained obstinately obstructed until December 4th, when they were spontaneously freed, and dark, tough, foul evacuations came away, but without any relief; on the contrary, symptoms of impending dissolution now set in. The pulse rose to 120; the features became shrivelled; and pain of the abdomen persistent, which, with constant sickness, and intolerable flatulence, made existence agony itself. In three days after he died, suffering until the last hour.

An examination of the body was made sixteen hours afterwards. The abdomen and pelvic regions were alone inspected. The parietes were without fat; a large volume of gas escaped when dividing the peritoneum, and a brownish turbid fluid, amounting to twenty-four ounces, occupied the cavity. The liver was friable and slightly congested; the spleen was normal. The stomach was contracted. There was distinct thickening of the short curvature in the submucous tissue. The pylorus was also thickened to a great extent, and its caliber much diminished. A section of the mass presented a white fibro-cartilaginous structure, having the appearance of schirrus. The duodenum was normal. A portion of the ileum, within one foot of the cæcum was contracted, and its coats thickened, as at the pylorus. The cæcum and part of the colon were enormously distended with fæces of natural consistence and appearance. The transverse colon at its one end was adherent to the pylorus, and at the other, presented narrowing of the tube and thickening of the coats at the inner margin. The sigmoid flexure and the rectum, though contracted, were filled with scybalæ.

XLI.—This specimen consists of the elementary portions of the occipital bone and atlas in a case of Encephalocele of the posterior lobes, which protruded, through the triangular part of the occipital. A cast of the tumour, as it appeared before dissection, is also in the collection.

XLII.—The bones of the foot and leg, in a case of internal Varus, which were removed at the General Hospital in 1849.

XLIII.—A rare MALFORMATION. The vena azygos may be seen on the *right* side of the aorta, formed from the veins of the lower extremities, while the inferior cava communicates with the veins of the portal system alone.

XLIV.—Scrofulous disease of the TESTIS, removed by excision from a man aged 32; the other testicle was likewise affected.

XLV.—PURPURA; CHRONIC BRONCHITIS AND EMPHYSEMA; ENDOCARDITIS AND DILATATION; BRIGHT'S DISEASE.—Charles Keating, aged 41, a sailor, of irregular habits, was admitted into hospital November 29, 1851. He was subject since a child to cough and dyspnœa. Anasarca appeared last May, and continued with intermissions ever since. Spots of well-marked purpura were observed on the extremities six weeks before admission, since which time epistaxis, hemoptysis, and bloody evacuations have been the only new symptoms. His countenance was pale and bloated, and, though he did not complain of palpitation, or any uneasiness in the cardiac region, the history of the case suggested a careful examination of the heart. Over the region of the valves was heard a distinct double murmur, diminishing in intensity towards the apex. This, with the visible arterial pulsations which were observed in the neck, sufficiently indicated the lesion in the specimen presented. There was no extra cardiac dulness, but the lungs anteriorly were very resonant on percussion, and emitted to the ear bronchial râles, with prolonged expiratory murmur, indicative of emphysema, while posteriorly there was some dulness at the base, with coarse crepitant and bronchial râles, showing the probable existence of congestion, or œdema of the air-cells, and smaller air-tubes. The urine was below the normal specific gravity, and coagulable. He complained much of pains and stiffness in the arms, especially the right, where the purpura was well marked. As the eruption declined, under the treatment employed, the intelligence became affected. Delirium was noted on December 4th with imperfect articulation, and continued with remissions until, the 14th, the day of his death. During this interval the anasarca had disappeared, but the urine remained unchanged.

On examination, after death, of the different organs, the diagnosis was verified in every particular, except as regarded the dilatation of the left ventricle. There were bronchial congestion and abundant œdema, with patches of emphysema on the anterior margins of the lungs. The borders of the aortic semilunars were fringed and studded with a rough coating of lymph, causing obstruction to the flow of the blood, and allowing regurgitation. The mitral was similarly but not so extensively diseased, one section being alone affected. The cavity of the left ventricle was increased to double its natural dimensions, while the walls remained of their normal thickness. The liver, spleen, and intestines were natural. The kidneys were greatly enlarged and softened, and on section presented the usual appearance of the first stage of Bright's disease.

XLVI.—This specimen is the left parietal and left half of the

frontal bone, presenting an example of the influence of Tertiary Syphilis. A considerable portion is destroyed by necrosis.

XLVII.—The skull of a young female who died of Syphilitic Disease. The palate, and nasal and ethmoid bones are partially destroyed, and the malar and maxillary present specimens of osteitis.

XLVIII.—The femur, tibia, and fibula of one extremity here exhibit well-marked Syphilitic Exostosis.

XLIX.—A portion of the dura mater of a child, aged five years, presenting Rupture of the Superior Longitudinal Sinus, the result of an injury.

L.—This specimen is the cerebellum of a man aged 40 years, who had left Hemiplegia. An apoplectic cell exists on the left side.

LI.—Acute Peritonitis; Ulceration of the Rectum.—John M'Givorn, aged 55, infirm, was admitted into the surgical wards of the General Hospital, Belfast, on the 27th of May, 1851. He was subject to a purulent discharge from the anus for the last four months, with pain and occasional hemorrhage. A careful examination of the rectum showed no trace of a fistulous opening, as had been suspected before admission. On 5th June, he began to complain of fulness and tenderness of the abdomen, which was tympanitic on percussion. The bowels were confined for two days; the pulse quick and weak; and the tongue covered with a brown fur. The symptoms continued, notwithstanding the usual treatment. Vomiting occurred on the 7th, with exceeding tenderness and swelling of the abdomen, and the pulse at 132. He died on the 9th.

The abdominal and pelvic organs were alone examined. After section of the parietes, the small intestines appeared greatly distended. The peritoneal surface was highly injected, and smeared over with recent lymphy effusion. There was some adhesion at different points, and a large quantity of thin yellow exudation. Internally the rectum was found to be diseased. Its entire surface, from the sigmoid flexure to the anus, was thickened and ulcerated, and the free surface of the ulcers covered with lymph, just as is observed in diphtheritic inflammation. No appearance of fistula could be detected. The other organs were natural.

LII.—Phthisis, Chronic Pneumonia, and Pleuritis.—David Patterson, aged 35, a labourer, of drinking habits, dark complexion, and of greatly emaciated appearance, was admitted into hospital on the 20th October, 1851, labouring under an illness of one year's duration. Dyspepsia and debility were the first symptoms, which continued with remissions for a period of eight months, when he was seized with cough, at first slight, but soon becoming very harassing. He never spat blood, or complained of lateral pains. The chief symptoms on admission were, short and constant cough, sternal soreness, and lividity of the lips, rigors, and perspiration. The tongue was clean and moist; the pulse small, quick, and feeble; and anorexia and diarrhœa attended. On

examination, the apex of the left lung gave marked evidence of tubercular softening; and at the base the dull percussion, with tubular respiratory murmur, indicated condensation of the pulmonary substance. The right lung presented signs merely of vesicular bronchitis and pulmonary congestion. Treatment was of no avail. Hectic and the diarrhœa carried him off on the 19th of November. The body was greatly emaciated. The lungs, which were the only parts examined, were large, and fully occupied the thoracic spaces, without the collapse usual on raising the sternum. This was owing to the numerous adhesions, which were very strong and old, and observed principally at the apices. There was a very small quantity of liquid effusion. Numerous cavities were seen in the upper lobe of the right lung, and a large one at the apex of the left. Section of either lung presented extensive consolidation (red hepatization), in the midst of which might be observed a white mottling of tubercle, presenting very much the appearance, in colour at least, of a mixture of pepper and salt. This case closely resembled that of Ellen Ferguson (No. XXXII. of these Reports), and presented a good example of a combination which we believe is much more common than generally supposed, and accounts for many anomalous symptoms occurring in protracted phthisis, where the pneumonic complication has not been suspected.

LIII.—Lumbar Abscess; Hypertrophy of Liver; Old Pleuritis.—John M'Kenna, aged 25, a wood-turner, of scrofulous appearance, was admitted into hospital on 29th of April, 1851. He was twenty-one months ill. The first symptom was pain in the right iliac and lumbar region, which continued with frequent intermissions. In the course of a year an abscess had formed, and soon spontaneously opened in the region described, which has been discharging ever since. Three months ago he contracted a cough, which has continued very severe. He has lost flesh much, and his appetite and natural sleep have left him for a considerable time. The examination of the lungs chiefly indicated bronchitis, with some evidence of tubercle in the left apex. The feet and ankles were œdematous, the pulse quick and small; and there were present slight dysenteric symptoms. On the 7th of June erysipelas appeared on the face, attended with great prostration and involuntary evacuations. He expired on the 12th. The body was emaciated to the last degree. Both lungs were adherent by old pleuritic bands, and were with difficulty removed for examination. The left lung presented small masses, grey and gristly, like small portions of boiled tendon. On section, either lung exhibited abundance of white frothy serosity, bursting from the bronchial tubes; the anterior edges of both lungs were emphysematous. The heart was extremely small. The liver was enormously enlarged, very dense, and presented a fawn colour on section. The spleen was normal. The peritoneum over the small intestines was highly injected, and some loose flocculi of imperfect lymph were observed adherent at a few

points. A very few slight adhesions of the peritoneal layers were seen between the liver and parietes. About two quarts of straw-coloured fluid escaped from the peritoneal cavities. The mesenteric glands were enlarged and hardened, but not tubercular. The intestines were distended with gas throughout; their coats extremely attenuated, and the mucous membrane uniformly pale. The kidneys were small, but otherwise normal. No trace of the lumbar abscess was seen in the peritoneal cavity. The gristly substances in the left lung were examined under the microscope, and found to consist of an amorphous granular substance and oil globules. A thin section of the liver, in like manner, presented well-marked congestion of both hepatic and portal systems. This case, during life, was obscure in several points. Phthisis was suspected in the apex of the left lung, from the signs and the general appearance. These are, however, explained by the co-existence of bronchitis and pleuritic thickening on the one hand, and the effect of prolonged suppuration on the other. The sub-acute peritonitis and the hypertrophied liver were not by any means clearly indicated during the progress of the case, as œdema of the ankles is frequently met with in the closing days of life, independently of hepatic disease; and the tympanitic state of the intestines completely prevented a proper examination of the abdominal organs.

LIV.—Urinary Calculi from a Female.—These calculi, two in number, were presented by Surgeon Stewart, of Carrickfergus, who removed them on the 15th May, 1851, by the method practised by Mr. Ferguson, of London[a]. They appear to have been partially connected, and surrounded by filamentous tissue, as the convexity of one corresponded to a concavity on the other. The connexion must have been, however, very slight, as they were removed separately, and the last extracted was imbedded in a cyst-like duplicature of the bladder. On chemical examination they were found to be composed of phosphate and carbonate of lime. They weighed 160 grains and 100 grains respectively. Mr. Stewart forwarded, along with the specimen, the following account of the case, and especially of the manner of operating:

"Mrs. G., aged 50 years, the mother of several children, had been afflicted with symptoms indicating the presence of stone in the bladder for nearly two years. Having passed a silver catheter, I felt and heard it strike against a stone. I explained to her that an operation would be required for its removal; to which she assented. The operation was performed by me, assisted by my son, on 15th May, 1851. The method which I adopted consisted in dividing the external orifice of the urethra, for about half-an-inch, with a probe-pointed bistoury passed along a grooved director (the patient having been previously placed on a table, and secured in the usual way for lithotomy). Then, having introduced the point of my left fore-

[a] Lancet, 12th September, 1846.

finger into the wound, I gradually insinuated it, with a semi-rotatory motion, into the bladder; this was easily affected, the posterior part of the passage being considerably dilated, whilst the external orifice was in the natural state, and possessed considerable rigidity. Having touched the stone with the point of my finger, I slid along it a pair of nasal polypus forceps (the blades of which being six inches long, and their junction three inches from the points, I did not require to separate the handles more than the diameter of the stone), and then, withdrawing my finger, the stone was seized and extracted with a gentle rotatory motion. Having passed my finger again to ascertain if there were any more calculi, I detected another inclosed in a cyst, and which required to be detached from it with the finger (using at the same time firm pressure with the hand of my assistant above the pubis) before it could be seized with the forceps and extracted. It was about the size of a nutmeg. My patient recovered completely the retentive power of the bladder, and is now in good health. This plan of operating is the same in principle as that published by Sir Philip Crampton in the Dublin Quarterly Journal for February, 1847, p. 2, but it is effected by a more simple apparatus, and, in my opinion, causes less pain to the patient; as, with the left forefinger, used as a dilator, the surgeon is better able to judge of the degree of resistance the urethra makes to its passage, than by any other dilating material whatever, and can more or less gradually insinuate it into the bladder, according to the degree of resistance offered."

LV.—Enormous fibrocystic Tumour of the Neck.—This tumour was situated on the left side, and measured about twenty inches in its extreme length, extending from behind the left ear, in an oblique direction to the lower part and opposite side of the trachia. It sank deeply into the soft parts behind the left ramus of the jaw, so as nearly to obliterate the passage of the fauces, pressing upon the œsophagus and larynx. Its extreme circumferential breadth measured fifteen inches, and its weight was nearly five pounds. Upon section the mass presented the usual fibrous structure, and in the centre, a distinct cyst, half filled with a cheesy matter, was observed, and at a point nearer the surface, a congeries of loaded vessels gave this part a melanotic appearance. The specimen was presented by Dr. James Moore, one of the surgeons of the General Hospital.

The subject of the case was a man, aged 28, a native of Lisburn. At the period of attendance his appearance was somewhat emaciated, his countenance pale, with an anxious and care-worn expression. He stated that the tumour originated fourteen years previously, at first not larger than a pea, and situated beneath the lower jaw, perfectly moveable under the skin, and at the time attracting but little attention. During the first two years it increased but little, but afterwards it had progressively and regularly enlarged. The surface of the tumour presented no unusual appearance. The only complication elicited from the history was, that he had been latterly

complaining of chronic dyspepsia. He was submitted to consultation on his admission to the Belfast General Hospital. Considering the great size (latterly rapidly increasing and threatening asphyxia), its probably non-malignant nature, and its relative position not involving the main vessels,—and further, as he strongly expressed a wish for the operation, it was deemed expedient to remove the mass completely, and thus give the patient the only chance of prolonged existence. The steps of the operation were briefly as follows:—An incision was made over the centre of the tumour, in the direction of its long diameter; the skin on one side was dissected back, and the tumour gradually and cautiously turned out of its berth, in doing which, each incision was made upon the tumour itself. Some difficulty was felt in removing one of its lobes, where it had forced itself deeply into the soft parts, behind the ramus of the jaw. Not more than four ounces of blood were lost during the entire operation, which lasted during three-quarters of an hour, though one inch in length of the carotid artery, immediately below the bifurcation, was exposed, and the occipital artery divided. Both the carotid and the jugular vein remained completely unconnected with the tumour, thus corroborative of the diagnosis. The patient bore the operation with the utmost fortitude. The immense gaping wound was filled with lint, and a light compress and bandage applied. An hour after the operation the pulse was only 85. Unfortunately, however, secondary hemorrhage occurred, in about four hours afterwards, to the extent of half-a-pint, which was found to proceed from a wounded branch of the occipital. This was, of course, immediately stopped by securing the vessel. The pulse and respiration now continued to improve, and all seemed going on well, until the following morning, when diarrhœa and vomiting supervened, and next day he sank.

LVI.—Tubercles in the Brain.—This specimen consists of the portions of the brain of a child, aged three years, presenting small masses of tubercle, four in number in the cerebrum, and one in the cerebellum. During the last few months of its life, repeated convulsions were the chief symptom. Tubercular matter was also observed in the lungs.

LVII.—Ulceration of the Dura Mater.—This condition originated from injury which occurred during the operation of trepanning by an hospital surgeon; from *Lizars' Collection.*

LVIII.—Calcareous Deposit in the Arch of the Aorta.

LIX.—The Tunica Vaginalis in Hydrocele.

Case of Peritonitis following the Rupture of an Ovarian Tumour in a Female two months pregnant; Recovery. By Jolliffe Tufnell, F.R.C.S.I., M.R.I.A., Surgeon to the City of Dublin Hospital, &c. &c.

Having recently brought under the notice of the profession[a] a case of peritonitis succeeding the swallowing of a small portion of a turkey's feather, which, lodging in a fold of the large intestine, occasioned death by perforation of the bowel, illustrated thereby the trifling cause by which a fatal termination may sometimes be produced, I purpose now to detail the particulars of a not less interesting example, where peritonitis of the most formidable character followed the rupture of the attachments of an ovarian tumour in a pregnant female, where all the symptoms of intercepted intestine existed for four days, where extreme salivation followed the employment of mercury, where the tumour itself enlarged rapidly after the accident, and yet where not only did recovery take place, but utero-gestation was not interfered with, the patient going her full time, and being delivered of a full-grown living child. The two cases exhibit thus a striking contrast between the retentive powers of life in different individuals under circumstances of a somewhat similar nature.

Mary D., a finely-made, healthy-looking woman, menstruated for the first time at 16. She married in the succeeding year, and had her first child within ten months. She was next confined at 21, and completed her third pregnancy at 23. This was a twin birth, after a lingering labour of two days, and was followed by post-parturient flooding. The hemorrhage seems to have been excessive, and to have depended upon inertia of the womb; for her account is, "that the doctor, on reaching her, took the first thing at hand, which happened to be a thick square book, and bound it very forcibly on her belly, remaining for many hours by her side, giving her brandy and wine."

She suffered much upon this occasion, and was greatly reduced by the loss of blood, yet, nevertheless, suckled both children herself. Her constitution was much weakened by this effort, coupled with the preceding loss of blood, and, consequently, the next conception proved abortive, as she miscarried at about three months. Her next child was born when she was twenty-five, the sixth at twenty-seven, and the seventh at twenty-nine years of age.

About three months after the last birth, she for the first time felt uneasiness in the right iliac fossa. It was not constant, but came on whenever she took much exercise, or on lifting any weight. After persisting for a longer period than usual, she one day examined the part, and then for the first time detected a tumour the size of an egg. It was oval, even, and hard, "*feeling like the gristle of*

[a] Read before the Surgical Society of Ireland, February 7, 1852, reported in the Dublin Medical Press, February 18, 1852.

meat," moved freely from side to side in the abdomen (as she lay on her back), but fell forwards when she stood upright. This tumour increased very slowly but progressively in size, until it assumed the dimensions and somewhat the shape of a large breakfast-cup. Before the menstrual period it always grew fuller and more heavy, remained stationary during the flux, and then receded again. As it permanently dilated so did the uneasiness increase, until at length she could hardly take an ordinary walk, or carry a light basket in her hand, without experiencing great pain in her hip, round the crest of the ilium, and down the thigh. The catamenia were regular, and the functions of the rectum and bladder naturally discharged.

Such was her previous history up to the night of the 18th of October, 1850. She suffered much pain the preceding evening from having taken more than usual exercise during the day, and consequently retired early to bed. In the night, or rather towards morning, she was awakened by the crying of her child, who was lying on her right side in the bed. Being upon her back at the time, she endeavoured to lift it across from the right to the left side, and, in making considerable muscular effort for this purpose, "*felt the tumour tear, rise up out of the flank, and twist itself over.* Immediately the most excruciating pain followed, shooting from the groin to the back, of a sharp, boring character, like a long-continued labour pain.

Faintness and collapse supervened, and for a considerable period she remained bordering on this state. After rallying, the agony returned, and she was in the following condition when I was called to her about 8, A. M.:

Lying on her back, with the knees drawn up, crying in a piteous manner, she was evidently in the greatest possible distress. The hands were clasped over the abdomen, and she was afraid to move, breathe, or even stir. I had much difficulty in making an examination of the belly, but I did so sufficiently to enable me to detect a large globular body, of a firm, even consistence, lying on the right side of the abdomen, midway between the crest of the ilium and umbilicus. That this tumour itself, or its attachment, had recently ruptured there was no doubt, and as such I looked forward to the issue of fatal peritonitis.

I prescribed a full dose of laudanum, viz. sixty drops, at once, and ordered hot fomentations to the belly, to be followed by laudanum sprinkled freely over the surface, and a lavement of tepid water to be injected.

At, 3, P. M., I visited her again. The opium seemed to have had no effect. She was complaining greatly of pain and tightness across the abdomen. In addition to this she was vomiting greenish bile, and her countenance was indicative of, if possible, increased distress. The pulse was very frequent and small. I now bled her to sixteen ounces, and ordered leeches to be applied to the abdomen, but, before doing so, I made a long-continued effort to restore the tumour to its former position by manipulation, and turning her upon her side. In

this, however, I altogether failed, the tumour remaining steadily lodged upon the small intestines.

I prescribed two grains of calomel, with half-a-grain of opium, to be administered every second hour; sherry-whey and Wenham Lake ice to be given as she desired, with small quantities of cold chicken tea.

The next day she had further declined. The vomiting had become almost incessant, the attempts to discharge the stomach being now repeated so frequently, that she was lying with her head over a small basin kept ready to receive the contents. No stool had come away after the injection, nor had the bowels acted. The tenderness of the abdomen was so great that she would not allow the slightest examination to be made, or any further effort to dislodge the tumour to be attempted, No water had been passed since the accident, the catheter, therefore, was introduced, and some high-coloured urine drawn off. The same treatment was continued, with the addition of half-a-drachm of mercurial ointment being well rubbed into the inside of the thighs every eight hours.

October 21st (third day).—Peritonitis had become determined; the belly distended and acutely painful; the breathing rapid and thoracic; the pulse hard, small, and very frequent; the vomiting persistent, and no evacuation from the bowels. Sinapisms were applied to the epigastrium, mercury and opiates continued, wine very freely given, and beef-tea and chicken broth as desired. The catheter was also regularly employed. The mouth had already become sore.

October 22nd (fourth day). The patient was now in a most critical condition; the vomiting incessant; the belly tympanitic; the head sunken; and the vital powers beginning to decline. Salivation had fully ensued, yet no stool had passed from the bowels, and eighty hours had elapsed since the commencement of the attack.

Under these circumstances I deemed it desirable to summon a consultation to consider the propriety of resorting to operative interference. In this I was kindly assisted by my colleague, Dr. Williams, by Dr. Churchill, and Dr. Carte. Upon our meeting and examining the case, a new feature, however, presented itself, the patient suggesting the possibility of her being pregnant, as her last change had not made its appearance, and the general regularity of its occurrence made her think she might be so. This assertion necessarily decided the impossibility of interference, and it was considered that nothing more could be done than to continue the former treatment, viz., the use of opium in full doses, and to support her with beef-tea and wine; the effects of mercury having been already fully produced. This plan was accordingly followed out; the wine was liberally poured in, and her strength thus kept up. In addition to this, I should mention that the surface of the abdomen had been painted with liquid blister, and raw cotton applied over all.

October 23rd (fifth day). Early this morning a discharge of green, slimy, mercurial evacuation began to pass from the bowels.

As the day advanced, this increased in quantity, and for several hours it continued to run away without effort or pain. The vomiting (on its supervention) materially declined, and the countenance at once became less indicative of distress. The same treatment was steadily pursued.

October 26th (eighth day). The improvement since the last report was considerable; the vomiting had altogether subsided, and the peritonitis was declining, but the effects of the mercury were now causing much local annoyance. The lower lip was ulcerated throughout, and the inside of each cheek in a state of superficial slough. Clove gargle was used for the salivation, and afforded marked and immediate relief. The only other addition to the previous treatment was the substitution of port for sherry wine.

October 30th (twelfth day). Much improvement had taken place in the general condition of the patient. A stool of healthy fecal character was passed this day, and for the first time since her illness she made water without the aid of an instrument. A flannel binder, in the form of an 18-tailed bandage, was now applied to the abdomen, and tightened to a degree that she could conveniently bear. This afforded much comfort and support, and four hours after being put on, she turned over upon the right side.

November 1st. The slight change of position upon the 30th was productive of much ill effect. She had return of pain in the abdomen, with sudden starting soreness in the tumour, darting from the crest of the ilium through the respiratory muscles of the right side; stiffness of the leg also followed towards evening, extending from the knee to the foot.

Upon examination of the extremity, it did not appear œdematous or swollen, but the superficial veins were prominently distended, whilst those of the opposite limb were not even visible to the eye. Repeated fomentations were ordered to the leg, and a poultice of linseed-meal, made with a drachm of the extract of belladonna dissolved in a pint of boiling water, directed to be applied over the whole surface of the abdomen, which was still raw from the effects of the blister, the cutis having ulcerated throughout.

November 2nd. She had experienced relief from the belladonna, but had a rigor in the night. The veins of the leg and thigh, in addition to being prominent, were tender, and the limb was œdematous throughout. The tumour, too, was considerably enlarged. The opiates, which had been diminished in quantity, were now again resumed as before, viz., half-a-grain of solid opium every third hours, and a dose of thirty minims of the tincture given at night. Wine, beef-tea, and jelly, ordered to be taken as desired.

November 3rd. The phlebitic tenderness and fulness of the veins had decreased, but the swelling of the leg remained the same, and there was much pain felt in the course of the peroneal nerve, but altogether, however, the patient was better, the voice stronger, and there was more general power; the sloughs had separated from the cheeks, and left a healthy-looking surface underneath.

November 5th. She had another relapse. Being better the preceding day, she was tempted to try and sit up in the bed. This was followed by vomiting of yellow bile and a rigor, which lasted for four hours. She had some degree of strangury also. The soreness and inward pain of the tumour complained of on the former occasion had returned, also, in an increased degree, and some of the darting pains through it were so severe as to make her rise up involuntarily in the bed. A careful examination of the tumour was now made, but no sign of suppuration could be detected either in it or elsewhere. The parietes of the abdomen were not inflamed, and the integuments glided freely over the tumour. There was no increase in the subacute phlebitis of the leg, or any visible cause for this constitutional disturbance. The patient's aspect was more anxious, the appetite had declined, and the night had been passed in restlessness and pain. A very full opiate was prescribed to be taken in the evening, the wine to be given more freely through the day, and a grain of sulphate of quina every fourth hour.

November 8th. She was doing favourably. The general soreness of the tumour continued, but the darting pain was gone. The pulse was steadier and had more power.

November 17th. Since the last report there had been a gradual and steady amendment of all the symptoms. The peritonitis and phlebitis both declined, whilst the vital powers correspondingly increased. The tumour now gave very little uneasiness. The surface of the belly was still discharging pus copiously from the blistered parts. This appeared to afford permanent and marked relief. The secretions and excretions were natural.

It would be tedious to follow up this case further through the stage of convalescence; I shall, therefore, merely state that recovery was gradual and unchecked. She remained upon her back in bed until early in February, when she cautiously got up. In March she took exercise about the room, and in April went out of doors. During all this time her pregnancy went steadily on, but the tumour also increased considerably in size, and became elastic to the touch, and when last examined (prior to the distention of the abdomen from parturition being so great as to prevent its outline from being felt) it appeared to be about the magnitude of an ordinary child's head, and to occupy nearly the same situation as before, inclining, however, rather more to the right side.

She gradually gained strength, and prepared for her confinement, which she expected to take place in June. I called upon Dr. Shekleton, of the Rotundo Hospital, and mentioned the case to him, requesting the favour of an admission for her into the Lying-in Institution. This he most kindly afforded, and I left her under the assurance that the labour would be conducted there. On the night of the 17th June she felt poorly, but did not make any complaint, and retired to bed. At about 2 o'clock in the morning labour-pain came on. She awoke her husband, who went for a car, and who returned in less than three-quarters of an hour, but found the child

already born in the bed. The funis was round the neck, and the infant livid from constriction and want of air. It was a full-grown male. For some time after release it remained insensible, but subsequently revived, and cried loudly and well. Towards the afternoon it began, however, to decline again, refused the breast, and grew faint, and died early the following day.

As regards the patient herself, she recovered speedily and well, and left her bed the eleventh day. The lochia, having remained for the customary period, gradually declined, and were succeeded by healthy menstruation, which continued up to the 25th of November last. Since then no change has come on, and there is reason to conclude that she is pregnant again.

Now, as regards the tumour, the most interesting fact is to be observed, that it has receded altogether. From the size of a cocoa-nut, or child's head, it has dwindled down to that of a kidney or small egg. From an elastic, encysted feeling body it has collapsed into a firm fibrous or solid lump, situated in the natural position in the course of the broad ligament, deep in the cavity of the pelvis. It exercises no influence upon the patient's health, which is hale and robust; gives no pain except at change of weather, or after exercise of more than a moderate kind. When turning from side to side in bed she feels some uneasiness or tightness in her hip. At the monthly period it becomes slightly enlarged, but after the catamenia have disappeared, declines again.

The history of this case I believe to be the following:—In the muscular effort made by the patient on the 18th of October, when lying on her back, she ruptured the attachment which had formed between the body of the tumour and the peritoneal lining of the pelvis; possibly, in addition, some cell or cyst of the tumour might have also given way, but whether this was so or not, the body of the tumour twisted round upon the small intestine, and, by its constriction of some portion of the gut, occasioned the access of those symptoms which, though common to peritonitis, are so much more marked in strangulated bowel, and which were so strongly persistent in this case. The combined action of the mercury and blistering (both carried to what might, perhaps, appear to be an excess) were, together with the opium, the means of meeting the peritonitis, but the purgative action of the mercury, by its drain on the intestines, was mainly the cause of successful issue, by unravelling the intestine, through the medium of the exhalent diarrhœa, which, filling the gut with fluid matter, forced under peristaltic action a passage through the bowel. Had not wine been liberally given from the first, the strength of the patient could never have borne up against the fearful odds with which she had to contend. The tumour of the ovary, under the stimulus of the attack, developed itself in the usual encysted form, but the pressure from uterine enlargement upon recently generated cysts was sufficient to induce absorption of them and their contents, the only structure capable of resisting the absorption process being the hard, fibrous stroma of the original

tumour, and which still continues to exist. From the relapses which followed upon both occasions of altering position, the conclusion must be drawn, that the utmost attention should be paid in any similar case to keeping the patient recumbent on her back for some considerable time after the more acute and urgent symptoms have declined.

Case of Encysted Tumour of the left Labium Externum, removed by Operation. By Christopher S. Black, M. D., L. R. C. S. I., one of the Medical Officers of the Belfast Dispensary.

Anne Berry, aged 60, a widow and mother of five children, states that, twenty-seven years ago she was thrown with violence, her "private parts" coming into contact with a stool, bruising severely the left labium externum. In consequence of the pain and tumefaction which resulted, she applied to a medical man, who advised poulticing, &c., which alleviated the pain and inflammation; but a small tumour about the size of a hazel nut remained. She suffered little uneasiness from this enlargement for a series of years, except during parturition, but within the last twelve months the tumour has increased rapidly without any apparent cause. When requested to visit her on the 1st March, 1852, I found the patient confined to bed, her countenance anxious, but by no means indicative of any organic disease of a malignant character. On examination I discovered a large, heavy, pendulous tumour, pyriform in shape, depending from the left labium, about five inches and a half long, by three and a half in diameter, elastic, not tender when manipulated, and slightly ulcerated at the base from friction against her dress. It was opaque, the surface smooth, with large veins, and the skin moving freely over it. Considering the growth to be a specimen of encysted tumour, I decided on removing it, as it interfered with the woman's power of locomotion, and was causing a great deal of suffering by its weight. On March 3rd, assisted by my colleagues, Surgeon Smith and Dr. Ross, I proceeded to operate. Having placed the patient under the influence of chloroform, and premised two "exploratory punctures," which showed the contents to consist of a viscid atheromatous matter, I made two elliptical incisions around the neck of the cyst, and endeavoured to dissect it carefully out, but whilst doing so the sac was slightly wounded, and immediately there gushed out about a pint of a fluid of an atheromatous character, dark-yellow in colour, and of the consistence of honey; this circumstance in some degree embarrassed the progress of the operation. With a few rapid strokes of the scalpel, however, I removed the mass without wounding any vessel of consequence. When the wound was examined, a small portion of the cyst was found to be prolonged between the mucous membrane of the vagina and the "os pubis" to the extent of about an inch and a half. We decided not to remove this part of the sac, as, in the event of a troublesome hemorrhage ensuing, we should have experienced much difficulty in the application of liga-

tures at such a depth, and pressure would have been inconvenient: one small artery only required to be secured. The wound was left open for a few hours and cold water dressing applied. The patient having been removed to bed, a stimulant antispasmodic draught was exhibited, as she became nervous and agitated when the effects of the chloroform began to disappear. Three hours after the operation I visited her; she was then much calmed by the draught; there was no hemorrhage, and I brought the lips of the incision together by a few points of "interrupted" suture, and in doing so included both edges of the remaining portion of the cyst, in the hope that adhesive inflammation might be set up between its surfaces, and obliteration of its secreting cavity might ensue; cold water dressing was re-applied, and an anodyne draught was ordered to be taken at bed-time. October 4th.—At my visit this morning I found the case doing well. She had some rest, and the edges of the wound were clean and healthy in appearance Pulse weak, 80; tongue slightly loaded; still nervous and agitated; the antispasmodic draughts to be repeated. 5th.—Simple dressing to be applied; pulse as at last report; bowels confined; to have an ounce of castor-oil. 7th.—The incision much swollen and painful; edges rather foul and glazed; the simple dressing to be omitted, and bread and milk poultices to be applied; bowels open; tongue clean; pulse 80. 8th.—I removed the sutures. She was relieved by the poulticing, and the edges of the wound looked much cleaner and healthier. She was ordered two cathartic pills and a tonic mixture containing quina and dilute sulphuric acid. 10th.—The patient feels much better to-day. I removed the ligature; the edges of the incision clean, adhering, and granulating kindly; the cold infusion and tincture of bark were prescribed in a mixture. She was directed to have the wound dressed with spermaceti ointment, and to be allowed to sit up a few hours each day. From this time the case went on favourably, nothing worthy of note occurring; the wound was almost completely cicatrized on the twentieth day, when I ceased my attendance.

Observations.—The great length of time which elapsed from the receipt of the injury to the full development of the tumour is, I think, remarkable in this case; it is probable that some of the sebaceous follicles, which abound in this region, had been originally ruptured, and a small cyst then formed, which, having remained in abeyance for many years, from some unknown cause suddenly took on a secreting action when the woman had attained an advanced period of life, and rapidly acquired the dimensions above given. Tumours in this situation are comparatively rare. I can find no record of any of an *atheromatous* character having been described. Liston, in the 77th number of the Edinburgh Medical Journal, gives an account of a tumour removed from the left labium externum of a female about thirty years of age, which is illustrated by a drawing bearing a considerable resemblance to the tumour which I removed. In Liston's case, the growth was of a totally different

nature, but nearly agreed in its pelvic attachments. He says: "the removal was attended with difficulty, as the cyst extended along the vagina, a distance into the pelvis, and permanent contraction of the 'sphincter vaginæ' remained in consequence of its removal. The tumour weighed 10 lbs. and was of a very dense character, similar to the mammary gland." By not removing the entire cyst, the risk of causing contraction of the sphincter muscle was, in the case I have described, avoided. The cyst on examination seems now to be entirely obliterated, and the parts are nearly normal in appearance. My friend, Dr. Malcolm, kindly made a microscopic examination of the contents of the tumour. His note I append:—"Plates of cholesterine numerous; oil globules; granular matter as groundwork, with divisions: epithelium?"

Case of Ramollissement of the Brain. By J. H. Haire, Surgeon, R.N.

A surgeon in the service of the Peninsular and Oriental Steam Company, aged 35, of a bilious temperament and temperate habits, on the evening of our departure from Hong Kong, on the 23rd of June, 1851, complained of slight headach, with tendency to nausea; his tongue was furred, and his bowels confined; he attributed his indisposition to having drank beer during the previous ten days, whilst living on shore, being unaccustomed to do so when at sea, as he was liable to attacks of dyspepsia. When on shore he had also been a little more exposed to the sun than usual, but he did not consider this an exciting cause. Before he retired to bed, he took some calomel and colocynth, and on the following morning a large dose of senna mixture. At noon, seeing him much depressed, and anxious in manner, I suggested his using an enema, which was shortly after ejected without producing any effect; he then had a drop of croton oil with cathartic extract, which also proved ineffectual until it was repeated. Three hours subsequently, towards evening, the bowels were freely opened, there being copious bilious evacuations; after which he expressed himself as being much relieved, and his restlessness of manner seemed to subside for the time. On visiting him about 10, P.M., he evinced the same degree of nervousness and restlessness as before the bowels had been opened: in fact, he seemed as if labouring under mild delirium tremens, saying that he did not wish to be alone. His native servant remained with him during the night at my suggestion, and he took a pill containing a grain of morphia and three-fourths of a grain of tartar emetic, to be repeated in three hours if he should not sleep.

25th. He took the second pill, but did not sleep; pulse normal, rather feeble; tongue moist and tremulous: ordered to continue the pill every third hour. At noon he dressed himself, read for some time, and seemed more composed: he had some chicken broth and a little sherry. At night the morphia was increased to one and a half grain in each pill, with the same quantity of tartar emetic as before.

26th. He took three pills during the night, yet still complained of want of sleep. Supposing the morphia might be inert from the effects of climate, it was changed for opium, four grains of which, with three-fourths of a grain of tartar emetic, being exhibited during the day, every third hour: he has been sitting up all the afternoon, and read a little; he also sent for his desk, and wrote some memoranda. In the evening he seemed much as usual, but complained that he felt a sensation at either side of the head, as if fluid was rolling about. On inquiry, he said that he did not feel very much headach, although he was bathing his temples with Eau de Cologne; the weather being oppressive might be supposed to have induced him to do so, yet at my earnest request he allowed a blister to be applied to the nape of the neck; the pills were omitted, and he was ordered five grains of calomel and four grains of opium in two pills every third hour.

27th. Passed a sleepless night; as the blisters did not rise, the acetum cantharidis was applied, but the vesication was only partial; he was directed to continue the calomel and opium during the day. Whilst lying in an easy chair this afternoon he slept for five hours and a half.

28th. But little sleep during the night; had the calomel and opium as heretofore; says he feels better, and sat up all the afternoon outside his cabin; seems disinclined to be alone; his temper is irritable, but he regrets any ebullitions of passion when they occur.

29th. At 5, A.M., I was called, when I found him sinking rapidly: pulse scarcely perceptible, skin bathed in a clammy perspiration; stimulants were exhibited without effect, and at 7.30 o'clock he ceased to exist.

On examining the brain, four hours after death, the dura-mater was found to be very much thickened, the arachnoid and pia-mater were partially connected by patches of lymph, the arachnoid presenting an opaque appearance; a considerable quantity of serum was effused beneath it, the surface being covered with small globules of a purulent appearance; on the ventricles being laid open, they were also found filled with serum; the surface of the brain was covered with small globules of pus, its colour was unaltered, but it was soft throughout, almost adhering to the fingers on the slightest pressure. Being an invalid at the time, I was unable to examine the remaining viscera.

Being unacquainted with the habits of this gentleman when I first saw him, I was disposed to look on his symptoms as those of delirium tremens, taking into account his living more freely than usual for the previous ten days. I was subsequently informed by the Captain of the steamer that he had occasionally seen him much depressed, and that he would confine himself to his cabin for a day or two. He had been three years in India, and lived moderately. On arrival in England, I was told by his brother that he had fever about eight years previously, whilst pursuing his studies in London, and that the head was very much affected at the time. It is also worthy

of remark, that on the 26th, when he wrote some memoranda as to the disposal of his effects, in them was found this ominous sentence —"A voice calls me." We were unaware of the purport of his writing on this day; the memoranda were found in his desk after his decease. Strange to say, throughout his illness the pupils preserved their normal condition; there was also a total absence of paralysis.

On Rupture of the Funis, in its relation to Legal Medicine. By Dr. J. Spaeth, Assistant to the Imperial Lying-in Hospital, Vienna.

When we consider that the funis is composed merely of two arteries, a vein, some areolar tissue, and a serous investing membrane, not one of which belongs to the stronger animal structures, such, for example, as tendons, and if we moreover reflect, that the vessels alluded to usually run a more or less tortuous course, in consequence of which the extension of the cord does not put all its component parts equally upon the stretch, we shall be led, even *a priori*, to expect, that the force required to rupture the funis must not necessarily be extremely great.

In order to demonstrate this, and to ascertain exactly the force required, I endeavoured to test experimentally the sustaining power of the funis. For this purpose I made use of umbilical cords, not selected, but taken from twenty healthy children, born (in the daytime) at successive births, and I made the trials, in the perfectly recent state, after the removal of the placenta. In order to perform the experiments, I brought one end of such a funis, having first enveloped it in a fold of linen in order to prevent its being cut by the string, in a curve, and tied it to a higher part of the same funis, similarly protected with linen, so as to form a loop. To this loop I then suspended, by means of a soft cotton lace of the thickness of a finger, one of the basons of a pair of scales, which I gradually loaded with pound weights. To let the load work I now seized the other free end of the funis, interposing a cloth so as to prevent its slipping, and raised the weight slowly from the ground. I generally began with a weight of four pounds, including the bason; if the funis did not give way with this, I placed the bason on the ground, added a pound, and repeated this manœuvre until the rent took place.

[The author gives, in a tabular form, the results of twenty experiments, stating the sex of the child, the appearance of the funis, its length, the weight required to rupture it, and the situation in which it gave way. The greatest length was twenty-three inches, the least ten and a half inches. In nine cases the rupture took place in the middle of the cord, in three at the upper extremity, in one close to the lower or fœtal end, in four at three-quarters of an inch,

at one inch and a half, at two, and at three inches, respectively, from the lower end. In one case, in which the vessels were varicose, the cord gave way at the varix; in one which was very varicose, at the most varicose part; and in one in which the vessels were remarkably tortuous, at the point of greatest tortuosity.

As the result, it appears that, of twenty umbilical cords, two gave way with a load of five pounds' weight, three with one of six, one of seven, one of eight, four of eleven, three of twelve, two of thirteen, one of fifteen, two of sixteen, while one required a weight of twenty-three pounds to effect its rupture, the arithmetical mean, that is, the figure representing the weight under which the greatest number gave way, being eleven.

It is interesting to observe, that eleven is also nearly the real arithmetical mean, the result obtained by multiplying each weight by its corresponding number of cases, adding the sums, and dividing by twenty, being 10·95.]

If we now reflect that the ordinary weight of a newly born child amounts to from five to seven pounds, and compare this with the foregoing results, it will appear that, in six out of twenty cases, this weight was in itself sufficient to rupture the cord, while in but four was more than double the weight required to produce the same effect.

The greater or less facility of rupture, probably, to a certain extent depends upon the varying tenacity of the tissues of the cord, since funes, almost identical in appearance, gave way under very different weights; but it appears to be chiefly connected with the arrangement of the umbilical vessels. If these be varicose, or very tortuous, or if they form retrogressive loops, they cannot take their proportionate part in resisting any force to which the funis may be subjected. Thus, for example, the thin funis of a fœtus, at the fifth month, which contained no gelatinous matter, and in which the vessels ran a perfectly straight course, required a weight of eleven pounds for its rupture, while the navel strings of some healthy children, born at the full period, were torn by a weight of five or six pounds. The thickness of the cord is no criterion of its strength, as it depends principally on the amount of the Whartonian gelatine contained in the funis, which evidently can contribute nothing to its tenacity.

If we now apply what has been stated to cases of parturition, in which the full weight of the falling child can tell upon the navel string, as for example in births in the upright position, on the seats of privies, &c., we must take into calculation not only the weight of the child, but also the force with which it is expelled and especially, if the funis be long, the height from which it falls. Any one who has even but once witnessed a birth is aware how powerful the uterine contractions are; and the cases in which I saw the funis ruptured in deliveries of patients lying on the back or side, quoted in my former paper, published in the October and November Num-

bers of this Journal, prove that the contractions of the uterus are occasionally sufficient alone to rend the umbilical cord. If we then add together the three forces alluded to, the proposition will, I trust, not appear too strong,—*that in all cases of parturition, in which the full weight of the falling child can act upon the navel string, the rupture of the latter is, if not probable, at least possible.*

The best confirmation of this statement will, however, be found in the two following cases:—

Case I.—Johanna S., pregnant for the second time, was seized, on the nights of 21st and 22nd January, 1851, in her dwelling, in the Landstrasse, with labour pains, and, after the latter had continued some time, rose from her bed. While she was doing so the child fell unexpectedly on the floor. An inexperienced woman wrapped it up and brought it, without tying the funis, and without loss of blood, safe with the mother to the Imperial Lying-in Hospital. The funis, which was of the ordinary thickness, was unevenly torn, about five inches from the navel. The child did not suffer the least bad consequence. I did not see the placenta.

Case II.—Eva D., middle sized, primipara, felt the first pains about four o'clock on the evening of the 29th September, 1851, and about a quarter past nine the same evening walked by a footway of the glacis adjoining the imperial stabling (Stallungen), to the hospital. Suddenly, while the mother was walking erect, the child was expelled during a violent pain and fell on the gravelled walk, without the former perceiving any check upon the navel string. Her companion took up the child as it was, without tying the funis, wrapped it in an apron, and accompanied the mother on her journey. They had only proceeded a few paces further when the placenta also was expelled, which she likewise took up and brought with her. On their arrival at the Imperial Lying-in Hospital the funis was found to be untied, the apron in which the child had been carried was but very slightly marked with blood, and the child itself appeared lively and vigorous. Its head was covered with gravel, but uninjured. The funis was thirteen inches long, smooth, contained but little gelatinous matter, was free from knots, and was torn off, as if it had been cut, close to its placental insertion, but before the distribution of the vessels. Its circumference, which was everywhere equal, measured thirteen lines, and its tenacity, tested twelve hours subsequently in the manner already described, was fifteen pounds. The naked child weighed five pounds, five and a half ounces. — *Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien*, February, 1852, p. 116.

Mode of Termination of the Nerves in the Skin of the Fingers. By Rudolph Wagner.

At a recent meeting of the Royal Society of Sciences of Göttingen, the celebrated physiologist, Wagner, stated that he had arrived at

the following novel results, on a careful examination of the nervous distribution in the skin of the extremities of the fingers. What have hitherto been called the papillæ of the sense of touch present two distinct formations; 1st, those which receive only vascular loops (vascular papillæ); and 2ndly, the nervous papillæ interposed among the former. The nervous papillæ have a conical form, and each incloses a minute body which is also conical. This corpuscle is placed in the papillæ like a kernel in its envelope, and in it the minute ramifications of the nervous filaments terminate. Each primitive nervous filament divides into a great number of small branches, to the end of which the corpuscles (corpuscula tactus) are attached. The type of the distribution of the nerves is in general the same as obtains in the muscular system. Each minute nervous filament governs, so to speak, a certain number of sentient papillæ, the aggregate of which correspond to a single point in the brain and spinal marrow; they produce only a simple impression of sensibility, whether they be touched singly or collectively. In fine, there exists a very curious numerical relation between the vascular and nervous papillæ of the different parts of the fingers and of the surface of the hand.—*Gazette Médicale de Paris*, 6th March, 1852, p. 152.

On Flexion of Limbs as a Means of arresting Arterial Hemorrhage.
By Dr. Bobillier, of Dunkirk.

In the case of wounds of those arteries which are situated in the flexures of limbs, the hemorrhage may be suspended and even finally arrested by powerfully bending the injured limb. In a case in which the radial artery was wounded where it passes between the first two metacarpal bones in order to enter the palm of the hand and form the deep palmar arch, I succeeded in arresting the hemorrhage by flexing the thumb and keeping it fixed in the palm of the hand. In a second case, in which the radial artery was wounded above the wrist, exactly in the situation in which the pulse is generally felt, I found it sufficient to maintain permanent flexion of the hand upon the fore-arm. On another occasion a butcher had pierced the fold of his arm with the point of a knife; the brachial artery was wounded, and a frightful jet of blood issued from it; no thread was to be had in the place where the accident occurred, and I was without the instruments necessary to take up the artery, but by powerful and sustained flexion of the fore-arm on the arm, I succeeded in permanently arresting the hemorrhage. I believe that we may frequently avail ourselves of this simple method of arresting arterial hemorrhages, but I do not pretend to say that it will succeed in all cases, or that it affords the necessary degree of security. I am aware that it cannot be compared with the ligature, the latter alone possesses certainty. I merely state what I have done, and only propose the adoption of a flexed position of limbs on sudden emergencies, as in the country, or at night, when the appliances necessary for ligature are not at hand.

[In an editorial note to the foregoing paper, M. Malgaigne observes, that he himself was the first to point out, in 1834[a], a certain means of arresting the hemorrhage in cases in which the brachial artery had been wounded in the operation of venesection, by strongly flexing the fore-arm. Subsequently, in 1838, he proposed in like manner to arrest the flow of blood from the popliteal artery by flexion of the knee; and he states that many surgeons have borne testimony to the simplicity and efficacy of this expedient[b]. M. Bobillier, he adds, who appears not to have seen these precedents, cannot therefore claim priority in reference to the plan spoken of; but his observations tend to prove that the flexion of limbs may be applied to a much greater number of arteries; and in this point of view it has the merit both of great interest and of unquestionable novelty.] —*Revue Médico-Chirurgicale de Paris*, Jan. 1852, p. 56.

On the Use of Iodine Injections. By Dr. Spengler, of Herborn.

After iodine injections had been previously employed in various forms of dropsy, Dieulafoi, of Toulouse, conceived the bold idea of using them for the radical cure of ascites. The subject of the first experiment which he tried was a painter, aged 42, of cachectic habit of body, and extremely weakened by constant diarrhœa of two years' standing: ascites had suddenly set in after the suppression of the diarrhœa. The remedies employed both before and after paracentesis, which had been four times performed, were ineffectual. After the fifth operation, the patient being extremely depressed, a solution of rather more than an ounce of tincture of iodine and a drachm of hydriodate of potash in five ounces of water was injected, the mixture being, at the moment of injection, still further diluted with water. The fluid was diffused through the abdomen by means of the pressure of the hand, and its diffusion was accompanied by an agreeable feeling of warmth in the part. In a short time the patient was laid on his side, whereupon about half the fluid flowed out of the canula. In the evening febrile re-action and slight abdominal pain set in, but were soon relieved by mercurial frictions and poulticing. Ten days afterwards, the paracentesis and iodine injection were repeated; the abdominal enlargement was diminished about one-half, the obliterated portion being the lower region on the left side, consequently the quantity of the contained fluid which escaped through the puncture did not amount to more than half what it had been before the injection. In two months' interval the paracentesis and injection were again repeated; the enlargement had now become roundly circumscribed, and contained little more than five pints of fluid. The symptoms were the same after every repetition of the operation. Eight days after the last iodine injec-

[a] Manuel de Médecine Opératoire, First Edition, p. 78.
[b] See his Journal de Chirurgie, vol. iv. p. 120.

tion the abdominal cavity was apparently quite obliterated. General anasarca now came on, which was, however, removed by the exhibition of purgatives, and the patient recovered completely, the only inconvenience he experienced being a slight dragging sensation in the abdomen on raising himself from stooping to the erect position. Dieulafoi subsequently repeated the injection of iodine into the abdominal cavity in another patient without any bad consequence; but of this case we have no accurate report[a].

I am not aware whether the operation just described was tried in other cases and crowned with similar success, or whether unfavourable results have prevented further publication on the subject. And yet it is precisely from unsuccessful cases that we often learn more, than from those of the casuist who communicates only brilliant histories of almost miraculous cures. I have myself employed iodine injection into the peritoneal cavity in but a single case of ascites. The case was that of a girl, aged 21, whose illness commenced in the middle of June, 1850. On the 9th September, paracentesis of the abdomen was performed, but after about three quarts of fluid had been removed, the canula became obstructed, and all efforts to obtain a further flow were unsuccessful. [It was evidently ovarian dropsy.] The diminution of the abdominal tension, however, now permitted a more accurate examination of the state of the viscera, and from various circumstances which are detailed at length, the author diagnosed fatty infiltration of the liver and spleen as the cause of the ascites!

The operation of tapping was repeated on the 7th October, and sixteen or eighteen pints of fluid were drawn off, and after the latter ceased to flow through the canula, a mixture of one drachm of iodide of potassium, three grains of iodine, and three drachms of distilled water was injected into the cavity of the abdomen. This was followed by violent pain and faintness. During eighteen days every movement in the abdomen, which was hard and tense, was attended with considerable pain. At the end of that time the abdomen began again to swell, the feet became very much distended, and the organs of generation in particular were greatly œdematous. The patient was remarkably anemic; her emaciation rapidly progressed; she had a considerable degree of fever, but the appetite continued tolerably good. The skin was somewhat jaundiced. About the 20th of October, the œdema of the feet and genitals had became enormous, and the parietes of the abdomen appeared to be on the point of giving way. On the 23rd, tapping was had recourse to for the third time, and was followed by the injection of two and a half drachms of iodide of potassium and six grains of iodine dissolved in four ounces of water. On this occasion upwards of thirty pounds of fluid were drawn off. Violent pains and faintness followed the injection. The attacks of pain lasted much longer than they had

[a] Bulletin de l'Académie Royale de Médecine, Jan. 6, 13, 20, & 27, 1846.

done before, and a very high degree of fever was present. The urine passed three hours after the operation contained a large amount of iodine. On the second and third days iodine was still present in the urine; on the eighth, no trace of it could be detected. At the end of a fortnight the œdema of the legs and genitals had again attained its height, and the swelling of the abdomen was recommencing, when the integuments of the legs gave way, and so much fluid escaped that at the end of November the abdomen was quite collapsed, and the hepatic and splenic callosities were plainly discernible. The patient had for some time been taking the syrup of iodide of iron. The emaciation, however, still progressed, and a profuse serous diarrhœa hastened the fatal result, which took place on the 10th December. Autopsy was not permitted.

Even in the earlier ages of medicine it had been attempted to inject stimulating fluids, vapours or gases (according to Roosbroeck, nitrous oxide gas), after paracentesis, through the canula into the cavity of the abdomen, in order by these means to excite adhesive inflammation, and to destroy the secreting surfaces. Thus it is stated that in two cases cures were obtained by causing the vapour of spirit to flow in. On this subject Canstatt remarks: "Even if some few experiments can be quoted which may be considered to prove that the desired object can be attained, the facts bearing on the point are still so few and uncertain, the danger of peritonitis following such injections so great, that the proposal at the present day has more historic than practical value." But neither in Dieulafoi's case nor in that which I have just related, was the inflammation produced by the iodine injection so great as to give rise to danger. And if it be the dread of extensive and dangerous peritoneal inflammation which has hitherto withheld practitioners from such attempts, both cases go to prove that such a result is not very much to be dreaded. In one case certainly the iodine injections were inefficacious, the dropsy progressed, and ended fatally. But even although this case has afforded no favourable result, yet taken along with the preceding it proves that iodine injections may safely be thrown into the abdominal cavity; and since many cases of cure by exciting inflammation, or, more correctly, by destroying secreting surfaces, are on record, we should be justified in instituting further experiments.

Moreover, I find in the Union Médicale for 1850, Nos. 17–19, three cases communicated by Leriche, in which ascites was perfectly cured by means of iodine injections. His formula is one ounce of tincture of iodine, one drachm of iodide of potassium, and eight ounces of water. He recommends that as much as possible of the dropsical fluid shall be drawn off, and that very shortly after throwing in the injection, the greater portion of it be allowed to escape. No inconvenience was felt immediately after the operation; but on the second or third day violent abdominal pains set in, which in a short time again disappeared. The patients were completely

restored to health in about three weeks, and in no case was any relapse observed even at the end of two years.

2. *In Hydrocele.*—It would be unnecessary to relate a single case to prove or confirm the efficacy of iodine injections in hydrocele, for hundreds of cures by this method are on record. [The author, however, thinks it well to detail a case in which the iodine injection effected a perfect cure after other modes of treatment had been unsuccessfully tried. The case was that of a scrofulous boy, ten years old, in whom hydrocele of the left side had gradually formed. He was first placed under the care of a physician in Anspruch, and treated by frictions, with stimulating applications so severe as frequently to remove the skin and produce most violent pain. Deriving no benefit from this plan, a second practitioner was called in, who punctured the scrotum, drew off the fluid, and injected red wine. The swelling, however, returning in as great a degree as before, the operation was, after an interval of many months, repeated. This too proving unsuccessful, the author was consulted. He insisted on the so-called radical operation of removing the tunica vaginalis. In August, 1849, this operation was performed under chloroform. A large portion of the tunica vaginalis was removed from either side, and a serous cyst, of the size of a hazel nut, which was firmly attached to the testicle, was cut off with a pair of scissors. The wound healed in the ordinary mode by suppuration, in a fortnight. Nevertheless, in the course of the winter the swelling re-appeared, and although inunctions of iodide of mercury and of iodide of potassium were immediately employed and diligently persevered in for six weeks, the scrotum was in February fully as large as it had been before the operation. On the 11th April, 1850, the patient was placed under the influence of chloroform, the scrotum punctured with a fine trocar, and after the contents had been evacuated, as much as possible of the following solution was introduced and brought into contact with every part of the scrotum by agitation and kneading:—iodide, of potassium, two drachms, iodine, one drachm, distilled water, four drachms. After the lapse of about five minutes the solution was allowed to escape. Soon after, the boy awoke without having experienced the slightest pain. The further progress of the case was exactly as described by Pitha; very considerable inflammatory swelling lasting for five days. By confinement to bed, and the use of a suspensory bandage, with ordinary nourishing diet and beer, he was on the ninth day after operation so far recovered as to admit of his removal home, a distance of five or six miles. There the swelling gradually disappeared, his general health improved, and now, at the end of fifteen months, he is in tolerable health, and the hydrocele completely cured.]

This case is particularly interesting from the fact of the so called radical operation by excision having been employed and followed by a relapse which only yielded permanently to the iodine injection; the injections of red wine also proved totally inefficacious as did the external remedies which, although in different degrees, were twice

employed. Hence we can no longer with justice designate the operation of excising portions of the tunica vaginalis "the radical operation;" this title now belongs solely to the treatment with iodine injections. Formerly the tincture of iodine was, and is even still, employed as the fluid to be injected, but the solution of iodu-retted iodide of potassium is at all events much more to be depended on than the tincture, because the iodine of the latter is apt to become deposited on the canula. In what mode the injections act in these cases is not as yet ascertained. Whether they merely excite a violent inflammation terminating in adhesion and obliteration, or whether they not alone cause the death of the most superficial layer of membrane, as the application of iodine does of the cuticle, but also alter the morbid action, is still an open question. At all events it appears to me, that it is not merely by exciting adhesive inflammation that iodine acts so admirably; for adhesive inflammation is likewise produced by excision, the injection of caustics, such as solution of nitrate of silver, caustic potash, &c., and yet these means have afforded no permanent result. The morbid secreting action is the principal cause of the mischief, and it is the alterative action of the iodine which here particularly comes into account, the more deeply penetrating property, which is not, as with caustics, limited to the surface. When, for example, ever so much is removed by excision, a portion, even though it be very small, of the morbidly secreting tunica vaginalis, may be left behind, and continue its previous action; and by this means the collection of fluid will necessarily become as great as it was before. In my opinion adhesive inflammation is not indispensable to cure; it is mainly the alteration of the entire tunica vaginalis, produced by the deeply penetrating effect of the iodine, which, by arresting the morbid secretion, produces the cure. The observations of Chaumet, of Bourdeaux, support this view, for he states[a] that many hydroceles heal without obliteration of the tunica vaginalis, which is moreover the termination to be desired. This method, besides the greater certainty of success, possesses the important advantage of being unattended with dangerous consequences, such as, especially in excision, are ordinarily observed. The pain of the iodine injection may be prevented by the use of chloroform. Excision has been called the most rational mode of removing hydrocele, but besides the case just now detailed, I remember assisting a friend and colleague in an operation for double hydrocele, in which a relapse of both hydroceles took place within six months, although very large portions of the tunica vaginalis had been removed, and copious suppuration had been long kept up.

This case appears to me to afford an important exemplification of the efficacy of the various modes of treatment of hydrocele, and to give a key to the decision of the question of the comparative suita-

[a] Compte rendu de la Clinique Chirurgicale de l'Hôpital Saint André à Bourdeaux, 1849.

bility of each method. From it the iodine injection would appear to be greatly preferable to all other plans hitherto employed. It is evident that, in the case I have related, the spirit was not the active agent, as has been asserted of tincture of iodine, for I did not employ a spirituous preparation. But even should a healing property belong to spirit of wine employed as an injection in hydrocele, it is well known that in diseases of the testicle it is inefficacious, while iodine exerts the most useful influence on the diseased organ.

I have quite recently had another opportunity of employing iodine injections in a patient affected with hydrocele, and since this case also presents some peculiarities which tend to prove and confirm the efficacy of this remedy, I shall relate it.

[The case alluded to is one of a young lithographer who had from childhood a hydrocele of the left side, which came on without any assignable cause. It was tapped before the boy had attained the age of six years, but rapidly regained its former magnitude, and remained undiminished until after his marriage. In the course of last year it suddenly increased, attaining the size of the closed hand, and the author was applied to for advice. The situation of the testicle could not be ascertained. As the testicle usually occupies the postero-superior part of such a tumour, the author, in consultation with his colleague who assisted him in the operation, selected the middle of the inferior portion of the swelling. In making the puncture he experienced a tolerably firm resistance. The entire of the fluid, which was perfectly clear, was drawn off, and it then became evident that the trocar had perforated the testicle, and that the latter was impaled upon the canula, nevertheless, the above-mentioned solution of iodine was injected and allowed to remain in the sac for upwards of five minutes. The operation was performed under chloroform, and no pain was felt. After the iodine solution, which had been thrown in in quantity sufficient to restore the former bulk of the tumour, was allowed to escape, the scrotum was not more than its normal size. Next day, however, it was swollen and as large as it had been before the operation, the skin was red, the swelling very hard and painful. The patient experienced a painful dragging sensation along the spermatic cord and in the upper part of the left thigh. There was no trace of iodine in the urine. The swelling continued unaltered for three weeks, and was accompanied by violent fever, great thirst, loss of appetite, and constipation. Calomel was administered. In the course of the fourth week, as the tumour showed no tendency to abate, the scrotum was gently strapped, and iodine with iodide of potassium given internally. The swelling now rapidly diminished. At the end of a week the patient was able to leave his bed, and by wearing a suspensory bandage felt no uneasiness. After another week the tumour was only as large as a small hen's egg; instead of being strapped, the entire scrotum was now covered with a layer of collodion, under which plan the swelling became much smaller, so that the patient felt quite well and able to attend to his business, and it was evident that the slight enlarge-

ment which still remained would entirely disappear, and that therefore the operation had been, in the true sense of the word, a radical cure.]

The most important point in the foregoing operation was the unfortunate accident of the testicle having been transfixed by the trocar. A traumatic orchitis ensued; yet even on this the iodine injection had no injurious effect, but on the contrary the inflammation tolerably quickly terminated in resolution, although from the great tendency of traumatic orchitis to end in suppuration, the latter result might almost with certainty have been expected.

3. *In indolent* (*kalten*) *abscesses.*—The multiplicity of plans which have been proposed for the treatment of indolent abscesses affords a proof either that several different affections have been comprehended under the term, or that no mode of treatment has as yet been devised exactly suitable to the disease. More recently, indolent, or, as they are called, "cold" abscesses, have been distinguished from other abscesses, namely, the abscesses of congestion; and the Parisian surgeons in particular have carried on lengthened discussions on the subject of their treatment. Nevertheless, no distinct conclusion has as yet been arrived at. The following case has afforded me an opportunity of employing the various modes of treatment, and as in the cases comprised under the two preceding heads, the treatment by iodine injection would here also appear to be the most advisable.

[The author concludes his paper by relating the case, which is one of a poor widow, aged 60, in whom a large tumour had slowly formed in the right buttock. At the end of nearly two years it had attained the size of the closed hand, and had become quite soft. During the exertion of making her bed the tumour gave way and discharged about eight ounces of pus. The discharge became thinner, more sanious, and more copious, the edges of the opening became flaccid, and the abscess showed a complete want of vital or healthy action; the patient was extremely reduced by the profuse discharge, and suffered from loss of appetite, evening exacerbations of fever, and watery diarrhœa. Warm poultices were employed, with the internal exhibition of quina and opium. Notwithstanding this treatment, the discharge became more profuse, and the patient still weaker. The author now tried ergot of rye internally as recommended by Brown[a], supposing that this remedy, which possesses the power of closing the mouths of the capillary vessels of the uterus and the secreting orifices of those of the vagina in leucorrhœa, might have the same effect on those of the sac of the abscess. It was given in powder combined with quina, but it proved useless. The septic condition became still more decided, the discharge more copious, and the patient's strength daily gave way. Local stimulants were next had recourse to. The solution recommended by Cappeletti, who prefers nitrate of silver to all other ordinary means[b],

[a] Lancet, May, 1850.

[b] Il Filiatre Sebezio, May, 1842.

consisting of twenty grains of this salt in four ounces of water, with one drachm of tincture of opium, was injected, each injection occasioning violent pain. At the end of a week, during which time the proportion of the nitrate in the injection had been gradually increased, the discharge continued as ichorous as before, and was attended with the same disgusting odour, and the size of the abscess was undiminished. The patient was supported by quina, wine, and nourishing diet. At length, in the middle of August, 1850, two months after the bursting of the abscess, iodine was used, according to Lugol's formula: one scruple of iodine and two scruples of iodide of potassium being dissolved in four ounces of distilled water; and a portion of this solution was injected every day, causing the most violent pain. But the discharge soon improved in quality and diminished in quantity, the cavity of the abscess became smaller, and in the commencement of September had closed, its situation being only pointed out by a contracted, slightly oozing surface, of the size of a silver kreutzer. This was now dressed with zinc ointment, and rapidly healed. The patient's health was perfectly good, but it was thought advisable to continue a tonic plan of treatment for some time longer.]—*Vierteljahrschrift für die praktische Heilkunde, Prag.* 1852. *Band. Originalaufsätze,* p. 159.

[Ascites can very seldom be considered essentially as a disease in itself, being almost invariably a symptom, and generally of some organic affection of the liver or spleen, or of some other internal organ. Even suppose the treatment recommended so strongly by Dr. Spengler were well calculated to cure the ascites, it is to be recollected that the disease upon which the dropsy depends is still to be overcome. The effusion may be a symptom of chronic peritonitis, and in such a case it may be asked, should the treatment by injection be employed? The author does not speak of the distention of the abdomen by the fluid contained in a very large ovarian tumour,—although we are inclined to think that his case was one of this nature,—and the treatment of such a disease by the evacuation of the cyst by an operation and the injection of a stimulating fluid; and yet such appears to us to be the only case in which the most heroic practitioner in these countries would think fit to venture on the employment of the plan recommended. The acute ascites that comes on from the effects of cold, or after scarlatina, cannot be contemplated by any one as the subject of such experiments as those alluded to by the author, much less can any of these operations be thought prudent where the ascites is the result of cardiac disease. On the whole, therefore, we do not think that in any instance the treatment of ascites by injection can be prudently adopted, but we wished to make our readers acquainted with the author's views on the subject.

Dr. Spengler's observations upon hydrocele require but little comment; the treatment first proposed by Sir James Earle, of the injection of port wine and water, has amply succeeded in the hands of British surgeons in effecting the radical cure of hydrocele, and whe-

ther that by iodine injection, used extensively by Velpeau and others, be really preferable, still remains to be proved.

In the author's observations upon chronic abscesses, he seems as little precise as he has been in his remarks upon the treatment of ascites; he has not, as fully as he should have done, first laid down that there are two forms of chronic abscesses—one consisting of a complete isolated cyst, which has no connexion with any diseased bone, and which may be treated successfully either by free incision or by exciting inflammation of the interior of the cyst by the injection of tincture of iodine or any other irritating fluid; and this is the only form of chronic abscess in which he has exemplified the treatment he recommends, while of the other form of chronic abscess symptomatic of some diseased portion of bone, in general deeply situated, he has not given any example; for such a case as this, we presume, he recommends the treatment by injection, yet is it to be expected that any such plan will here prove successful? If, for example, a true psoas abscess be evacuated, and its cyst injected with a stimulating fluid, we cannot expect either to cure the psoas abscess or the caries of the vertebræ upon which it depends. The author, in so superficially dealing with such important diseases, and suggesting such bold innovations in their surgical treatment, does not seem to us to have sufficiently felt the responsibility that must attach to the publication of opinions from so high a medical authority.—Ed.]

Special Pharmacopœia for Diseases of the Skin. By Alphée Cazenave, M. D., Physician to the Hôpital St. Louis, Paris.

(*Continued from p.* 256.)

Antimony.—Sulphuret of antimony has been extensively employed in the form of powder, pills, and lozenges. It constitutes the basis of a great number of officinal preparations formerly highly esteemed, the majority of which are now, however, obsolete. It is given in doses to the extent of one or two drachms daily.

Kunkel's Antimonial Lozenges.—Sweet almonds, two drachms; sugar, thirteen drachms; cardamom seeds in powder, one drachm; powdered cinnamon, half-a-drachm; levigated sulphuret of antimony, one drachm; gum tragacanth, fifteen grains; mix and form lozenges, each weighing fifteen grains, and consequently containing about one grain and a half of the sulphuret. These lozenges have been used in chronic cutaneous affections. *Stibiated Pills.*—Crude antimony, extract of dulcamara, equal parts, beat into a mass, to be divided into pills, each containing one grain and a half, of which from five to ten may be given in diseases of the skin three times a day. *Bouchardat's Antimonial Pills.*—Levigated sulphuret of antimony, ten drachms; cinnamon powder, four scruples; conserve of roses, as much as may be sufficient; make into boluses of six grains each. From two to four may be taken daily in squamous diseases. *Jasser's Detergent Powder.*—Crude antimony, sublimed sulphur, puri-

fied nitre, orris root, of each five grains: to be reduced to an impalpable powder, and taken morning and evening in half-a-glass of eau sucrée. This powder is prescribed in impetiginous affections, and its use should be continued for a long time. Latterly, however, the golden or deuto-sulphuret of antimony has been more frequently used in the treatment of chronic affections of the skin; it is much employed in England and in Germany, and is one of the ingredients of Plummer's powder, a well-known and extensively prescribed preparation. *Plummer's Alterative Powder.*—Calomel and golden sulphuret of antimony, of each fifteen grains. The ingredients should not be mixed until the moment of administration. The dose is from three to six grains daily.

Silver.—M. Serres, of Montpellier, proposed in 1838 the use of the salts of silver in syphilis, and at the same time published the favourable results of his experience. They have since been used, among others by M. Payan, who has confirmed the efficacy of this class of remedies, chiefly in those cases in which mercurial treatment is inadmissible, or in which it has failed. I have on a previous occasion stated[a], that from a series of experiments very carefully conducted in conjunction with Biett, we had drawn conclusions entirely at variance with the foregoing. We tried the oxide, chloride, cyanide, and phosphate of silver, beginning with the fifth of a grain, half-a-grain, and even upwards of a grain daily, and increasing the dose to an amount much greater than had before been tried. M. Ricord also has made experiments, the results of which have likewise been completely negative.

The preparations of silver are at present very little used internally, either in syphilis or in scrofulous diseases of the skin (lupus) for the treatment of which they have been proposed. The following is M. Payan's formula: chloride of silver, three-fourths of a grain; powdered orris root, one grain and a half; mix and divide into twelve equal portions. Frictions on the tongue with a portion continued for a quarter of an hour daily. In addition, a pill in the evening, containing the twelfth of a grain of oxide of silver. At the end of a few days M. Payan gives two pills instead of one. *Pills of Iodide of Silver.*—Iodide of silver, three grains; conserve of roses, as much as may be sufficient to form twenty pills, of which from one to five may be given as a dose in syphilitic affections and in lupus. Iodide of silver is not attended with the disadvantage of giving to the skin the leaden tint observed after the use of the nitrate (?) *Pills of Iodide of Silver.*—Nitrate of silver, fifteen grains; iodide of potassium, half-a-drachm; starch, forty-five grains, gum arabic, fifteen grains; water, as much as may be sufficient to form a mass, which is to be divided into 100 pills, to be rolled in silver leaf (Mialhe). The uses and dose of these are the same as of the preceding preparation.

But it is chiefly externally that the preparations of silver, and almost exclusively the nitrate, are resorted to in the treatment of syphilis and of diseases of the skin. The latter is the abortive remedy

[a] See Annales des Maladies de la Peau, tom. ii. pp. 29, 49.

proposed in variola, herpes, &c. It is the agent ordinarily employed in cauterization, to stimulate chronically ulcerated surfaces, to arrest the progress of a spreading erysipelas, &c., or to check a blennorrhagic or leucorrhœal discharge. It is well known that Alibert has frequently had recourse to it to allay pruritus, and in the treatment of a great number of cutaneous affections; a plan the inconveniences of which I have often pointed out[a]. *Solution of Nitrate of Silver.*—Nitrate of silver, four grains; distilled water, one ounce. To be applied with a feather to modify the discharging surfaces of a chronic eczema or impetigo.

Pomade of Nitrate of Silver.—Nitrate of silver, from fifteen grains to one drachm; lard, one ounce; mix;—to be applied as an ointment in erysipelas. *Pomade of iodide of silver.*—Iodide of silver, nine grains; lard, one ounce; mix;—in syphilitic and scrofulous enlargements. *Pomade of cyanide of silver.*—Cyanide of silver, nine grains; lard, one ounce; mix;—as a dressing in syphilitic ulcerations. The two latter pomades have been proposed to fulfil the indications for which iodide of potassium or mercurial preparations are had recourse to; but as it has by no means been proved that they possess analogous efficacy, they are generally little employed. *Injections of nitrate of silver.*—Nitrate of silver, three-fourths of a grain; distilled water, four ounces;—as an injection in blennorrhagia, the proportion of the nitrate being gradually increased. *Caustic injection* (Ricord).—Nitrate of silver, four scruples; distilled water, one ounce;—to be used cautiously as an abortive injection. *Cosmetics of nitrate of silver.*—Nitrate of silver, lastly, constitutes the basis of the majority of the preparations, and of the more or less celebrated dyes, which have been extolled for their efficacy in changing the colour of hair to black. For this purpose it is employed in washes, as a paste, in the liquid form, &c. All of them, which are not always without some inconvenience, are most frequently difficult of application and uncertain in their effects. The following are three of the most simple selected from a vast number. Nitrate of silver, one drachm; distilled water, one ounce; raw sugar, sufficient to colour the solution; it is to be applied by means of a fine comb dipped in the solution, care being taken to avoid touching the skin. Nitrate of silver, cream of tartar, of each, two drachms; weak liquor of ammonia, half-an-ounce; lard, half-an-ounce, mix. This pomade is to be applied to the hair by means of a comb or of a brush. Nitrate of silver, proto-nitrate of mercury, of each, half-an-ounce; distilled water, four ounces,—dissolve, filter, and wash the filter with distilled water, sufficient to increase the solution to five and a half ounces. A clear paste is to be made by mixing this solution with a sufficient quantity of starch. The hair is to be smeared with it at night, and covered with oiled silk; the next morning the paste is to be washed off, and any greasy substance applied in its stead.—*Annales des Maladies de la Peau et de la Syphilis*, tom. iv., 1852.

[a] Ib. omt. i. p. 353.

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